A NARRATIVE OF MEDICINE IN AMERICA

by JAMES GREGORY MUMFORD, M.D.

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BY

JAMES GREGORY MUMFORD, M.D.

ASSISTANT VISITING SURGEON TO THE MASSACHUSETTS GENERAL HOSPITAL AND INSTRUCTOR IN SURGERY IN THE HARVARD MEDICAL SCHOOL

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TO

WILLIAM OSLER

THIS BOOK IS CORDIALLY INSCRIBED BY

THE WRITER

PREFATORY NOTE.

THIS book is not a systematic history; it is a narrative of medicine and doctors. My object has been to take some of the conspicuous American physicians of each era in their proper sequence, to tell the story of their lives and their doings, and thus to illustrate the whole by a series of pictures, as it were.

Very many men, dear to Dryasdust and others, are unnamed; very many events are unchronicled; but I hope the story will show to laymen as well as to physicians something of the meaning of medicine and of the life of its votaries.

It has always seemed to me that of such meaning popular conception was of the dimmest. The lawyers have their great names well known to all readers of history; the famous clergy of the past are household possessions; great statesmen, insignificant monarchs, gallant soldiers and sailors, and even traitors, scoundrels, and fools, are immortalized by writers; but of the doctors, few know or seem to care. Even their professional offspring neglect them, and will tell you that it is only the science of to-day which really counts; as though we could divorce ourselves from the past, as though we could understand truly our present or make progress without a knowledge of that past, as though we ourselves were not part of history.

So, after a fashion, I have in these pages attempted to call back to life one little group of men. They tell their own story, and if that story point a moral, it is for you, kind reader, to decide and benefit.

In the development of the theme it has seemed best, for reasons that must be sufficiently obvious, not to bring the

narrative down to the present time. It stops practically with the Civil War, or about the middle of the last century. Certain fugitive chapters are added: on Ether, on the American Medical Association, and on some Modern Tendencies.

It has been decided also to omit long lists of authorities, although a few are quoted. An extensive search and study of original documents has not been attempted, but such works as came readily to hand were used, and for no little material of the earlier chapters I am indebted to Dr. Francis R. Packard's exhaustive and scholarly "History of Medicine in the United States" (to the year 1800) recently published. Practically all the authorities consulted are to be found noted in the volumes of the Index Catalogue of the Library of the Surgeon-General's office at Washington.

I thank, too, most cordially the Executive Committee of the Boston Medical Library for the courtesy of special privileges extended to me; Dr. Francis H. Brown, of Boston, for the use of manuscript, not yet published; and Dr. Malcolm Storer, of Boston, for valuable advice in revision.

J. G. M.

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INTRODUCTION.

THROUGHOUT history the man of action comes first; the fighting male, with his fists, his club, his battle-axe, and his sword. After him the poet, telling of his deeds. Then, after a long interval, the philosopher and the man of science.

So Achilles had his Homer, but no Plato or Hippocrates. Reason and science do not belong to the days of legend. The history of medicine does not depart from the history of the people. The brilliant genius—the man before his time—is but the best example of his time.

The meaning of science has always been understood by the chosen few, and the inductive method is as old as history; but legendary Rome did not produce a Galen, nor mediævalism a Thomas Huxley.

When we come down to the history of medicine in America, we must remember that for three hundred years after its discovery America was but a fringe on the borders of civilization. There were many men of action here in those early days; there were beginning to be some few poets to tell the story; there were fewer men of science. Indeed, men of science were little known in that Old World whence we came. One reads of doctors, —what we should call "practitioners,"—but scientists were few. They were not liked. There were many *theories* and *systems,* but, after all, such things interest us no more than the creeds of that time. That Van Helmont taught the doctrine of "Spiritual Vitalism" is of no more importance to-day than that Calvin preached "Predestination." And if such was the case in learned Europe, we must look for little in the wilderness.

Let us, then, glance briefly at the conditions, political and scientific, which obtained especially in that island

which the early immigrants called *home,* to see on what the American medicine of the seventeenth and eighteenth centuries had to build.

With the seventeenth century in England began the unfortunate and futile Stuart dynasty which for a hundred years, with two brief intervals, fought the losing fight with the people and the growing spirit of political freedom. The feeble, pedantic James, the shifty, unfortunate Charles I., the cynical trifler Charles II., the bigoted James II., and the dull and foolish Anne illustrate the degenerate Stuart family, little qualified to understand or deal with a proud and progressive people; while the remarkable episode of Cromwell's Commonwealth and the revolution of William and Mary but accentuate the failings of those others.

Party succeeded party, and the religious intolerance of the one provoked the religious intolerance of the other: Church of England prelate, Presbyterian and Roman Catholic, persecuted, each in his turn; but, through it all, constantly there were coming to the front real men, and with it all there was developing that intellectual freedom of which we now boast.

Then suddenly we plunge into that curious, unreal eighteenth century, with its stupid kings, its shrewd politicians, and its microscopic literature. A century of mediocrity in politics it was, almost down to our Revolutionary days, except for the cyclonic Chatham. Cards and port ruled in England, and the tired dilettanteism of good society.

To all those folk America meant little more than Zambesi land, except so far as it provided comfortable sinecures for well-born scalawags; and when the storm of 1775 burst upon the realm, George Washington was to Englishmen but an obscure backwoods colonel, and Benjamin Franklin a seven days' wonder for fools, although a solace to the wise.

A time of political incubation we are apt to think those centuries: for the old country as well as for the new.

Not altogether darkness for science, though, was the seventeenth century in England. The brilliant Harvey was born there in 1578, and midway in the reign of the foolish James, in 1616, while "Stenie" was being made a Duke of Buckingham, the great physician was teaching the true functions of the heart and the circulation of the blood. As truly as any man, perhaps, was he the father of physiology. And with Harvey we couple his famous contemporary, René Descartes, who was the first to show, as Huxley says, that vital phenomena, like all the other phenomena of the physical world, are, in ultimate analysis, resolvable into matter and motion.

In that century, too, Sydenham and Locke lived and taught. Sydenham, the father of rational medicine, who was the first to show us moderns the value of observation and the study of symptoms; and Locke, student of physical as well as of mental phenomena.

On the Continent, towards the end of the seventeenth century, lived Hoffmann, of Halle, and Boerhaave, of Leyden. Hoffmann, the first to attack the teaching of Galen and the humoral theory; Boerhaave, brilliant student, teacher, philosopher, inexhaustible man of science, tireless collector, and prophet of the best thought of his day.

Sydenham lived through the civil wars and died the year after the revolution of 1688. Boerhaave, born in 1668, lived well into the eighteenth century and died in 1738, in the reign of George II.

So Boerhaave's life covered much of two centuries, and brings us down through the dawn of modern science.[1]

[1] Whatever may be said for or against the genius and scientific attainments of Sydenham and Boerhaave, there can be no doubt that their influence was for the good of many generations of physicians in Europe and America.

Of medicine in the eighteenth century a vast deal might be written and of the men who made it.

In that century of memoir writing and salon philosophy, Linnæus, following the thoughts of Kircher and Leuwenhoek, was considering the parasitic origin of disease, and Plenciz was teaching that every disease has a specific infective agent.

Such were the most distinguished men of medical science known to us in those early days prior to our own Revolution, if we omit the Hunters, Pott, and other such who belong rightly to a later time.[2] The age was not a great age, perhaps, for scientific progress, as we reckon progress; but progress there was.

Those men were struggling out of an Egyptian darkness. There was no applause from colleagues and an admiring world. Painfully, often in secret, against prejudice and passion, against conservatism and the traditions of ages, mostly, those pioneers worked; so that, to one reading the ancient records, the wonder is not the smallness but the greatness of their deeds.

Such men were the great men, the lonely teachers. Slowly and feebly their light penetrated to those others, the humble doctors of the day. To them and mankind

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[2] Books required to be read by the candidates for examination (Massachusetts Medical Society, established June, 1808). Anatomy: Cheselden and the Edinburgh system. Physiology: Haller, Blumenbach, Boerhaave, and Cullen. Chemistry: Chaptal and Woodhouse. Materia Medica and Pharmacy: Duncan's Dispensatory; Massachusetts Pharmacopœia; Lewis or Murray's and Cullen's Materia Medica. Surgery: Benjamin Bell's System; do. on Ulcers and on Lues Venerea; John Hunter on Lues Venerea; do. on the Blood and on Gun-Shot Wounds; Desault or Boyer on the Diseases of the Bones. Obstetrics: Burns's Anatomy of the Gravid Uterus; on Abortion, Denman or Smellie. Pathology and Therapeutics: Cullen's First Lines and Nosology; Darwin's Zoonomia; Van Swieten's Commentaries; Sydenham by Wallis; Jackson on Fevers; Rush's works; Saunders on the Liver; Currie on Waters; Underwood on the Diseases of Children; Pemberton on Diseases of the Abdominal Viscera.

came little fresh hope. For generations men were born and fell sick and died with small help from Harvey and Sydenham, Locke and Boerhaave. That was the pity of it; and that, perhaps, more than any one thing, marks those days and these. To us the good thing presently is known; to those men it was brought only after years.

One good thing, however, came to England out of the East, some fifty-four years before our Bunker Hill. Inoculation for smallpox, a practice older than history, was carried by Lady Mary Wortley Montagu and taught to Englishmen: the bravest and worthiest thing ever yet done by women teaching medicine.

There were other men—some of them very distinguished in their time—and other measures. Wiseman and Cowper in England and Le Dran in France advanced the art of surgery. But enough has been said to illustrate the kind of times in which men were living and the kind of science which then prevailed.

Now, about a hundred and twenty years after the first American voyage of Columbus, one began to find scattered along the northern shores of the New World some feeble, struggling colonies, where Englishmen dwelt, attempting to establish permanent homes and a system of government. Their story and their measure of success it is needless here to tell. Suffice it only to name those stations of theirs where civilization first took on some form of vigor and where doctors found their work.

There was Virginia, with its bold John Smith and the pretty legend of Pocahontas,—all in the time of James I., whose reign is made memorable for us by the discourses of Harvey. Virginia, a great colony of vast estates, with a rough, wholesome life and a frontier hospitality; with its negro slavery, its tobacco, its Crown governors, its House of Burgesses, and its Elizabethan Society; changing little, save for increase in number of men and in wealth, down to Revolutionary days: the colony of

Washington, Jefferson, Henry, Marshall, and Light-Horse Harry Lee.

Early in the reign of Charles I., and before the English civil wars, came the first settlements in the Carolinas to the South (long futile), and at the same time, far to the north, the Plymouth Colony and the planting of Massachusetts Bay; with Maryland soon after and Connecticut and Rhode Island, all in quick succession, and before active civil fighting in England. In Cromwell's day little colonizing was done; then came the restoration of the Stuarts in 1660, with a consequent renewal of emigrations and a bountiful bestowal of American Crown lands through the latter years of the century. The North had been occupied and the South had been occupied, so now came the seizing and settling of the Middle Colonies, New York, Pennsylvania, and New Jersey.

Rough work, much of this, little calculated as yet for the advancement of medical science. Thus that seventeenth century in America came to an end: the seaboard taken and securely held by our vigorous ancestors, civil liberty established, and the country prepared for the prosperous material development known to the last two generations of our colonial days.

To those two generations in the eighteenth century life grew more calm and the Old World more near. Not that there was lack of action. French and Indians on the frontier continued a recurring warfare, the echo of greater battles fought beyond the sea. And out of it all grew constantly, for our ancestors, a wider experience, a closer touch with Europe, a sense of increasing strength and importance, an independence of thought, and an intolerance of control leading at last to political freedom through the American Revolution.

For the purpose of this narrative we divide roughly the colonial days of America into two eras, and those eras correspond with the two centuries of which I have told:

the seventeenth century, a time of colonization, struggle, and privation, when a footing was being made on these shores; the eighteenth century, when towns were building and farms were planting, when commerce was beginning to thrive, and schools and colleges were appearing in the land.

So we must expect to find the medical history of the one era quite distinct from that of the other. At first the practice, remote and inadequate, of Elizabethan England was brought here; then, with the succeeding century and the upgrowing of generations of American-born men, came a wider knowledge, better general education, and the first feeble attempts to combine the wisdom and teaching of the Old World with the changed experience of the New.

A NARRATIVE

OF

MEDICINE IN AMERICA.

CHAPTER I.

THE SEVENTEENTH CENTURY. COLONIAL MEDICINE.

The Englishmen brought their doctors with them when they came to settle Virginia, and the Jamestown of 1607 had three members of the faculty. Thomas Wotton,[1] Surgeon-General of the London Company, came out with the expedition which sailed from England on December 19, 1606,—a most uncomfortable season we must suppose. "Chirurgeon" Captain John Smith calls him, and ranks him with the "Gentlemen" of the expedition. Gentlemen surgeons were little known to our ancestors three hundred years ago. Those ancient surgeons were barbers first, and "gentleman barber" sounds strangely even to modern ears.[2] Now, Wotton was a surgeon certainly, but beyond the name and fact we know no more.

It is of some interest to consider for a moment what this surgeon and "Gentleman Adventurer"—the first of

[1] Roswell Park, following Stith, calls him "Woolton." I know not why.

[2] It was an ancient custom for the patient, when being bled, to grasp firmly in his hand an upright pole, in order to stimulate the flow of blood. As the pole was apt to become stained, a white linen band was twisted about it, and it was hung outside the door of the barber's shop. Our patriots have added a blue to the red and white stripes.

his kind to visit these shores—stands for in American medicine. The adventure was beset with hazard and hardship of a kind unknown to our modern world. It was an association of bold and roving spirits, joined together for an attack upon the distant, fearsome wilderness. The life was of the hardest and the recompense unknown. The voyage itself entailed a weariness and distress now almost inconceivable. So let us believe that the surgeon of the little fleet was a man of high heart and vigor, worthy predecessor of that long line of resourceful, able men who have honored American science.

The year 1606 was the third year of poor James; the penal laws against papists were being passed, and the plague was in London. Harvey had not yet announced his great discovery. Indeed, the world was very young. Earlier comers to Virginia, under Raleigh, had had no surgeon with them. Cause and effect we may not find in this; but misfortune, hardship, and disease so thinned their ranks that no permanent settlement was made. John Smith's adventurers, with their Wotton, fared better. Perhaps he "signified."

A pleasant speculation, all this, no doubt; but Wotton was the first of our pioneer doctors, and we must make the most of him.

Besides Wotton, the surgeon, other doctors came to these shores. With the "First Supply" followed "Doctor" Walter Russell, perhaps a man of science and holding a degree. Doubtless, Wotton returned to England, leaving to Russell all the medical cares. Two colonies claim the latter, for in June, 1608, Captain Smith, with a small company of fourteen, explored the Chesapeake. Among them went Russell, and so came to Maryland and the "Eastern Shore."

In the story Smith tells of the first medical aid given to Englishmen in the land. A few days later "it chansed our Captaine taking a fish from his sword (not knowing

her condition) being much of the fashion of a Thornback, but a long tayle like a riding rodde, whereon the middest is a most poysoned sting, of two or three inches long, bearded like a saw on each side, which she strucke into the wrist of his arme neare an inch and a halfe: No blood nor wound was seene, but a little blew spot, but the torment was instantly so extreme, that in foure houres had so swolen his hand, arme and shoulder, we all with much sorrow concluded his funerall, and prepared his grave in an Island by, as himselfe directed: yet it pleased God by a prescious oyle Doctor *Russell* at the first applyed to it when he sounded it with the probe (ere night), his tormenting paine was so well asswaged that he eate of the fish to his supper, which gave no less joy and content to us than ease to himselfe, for which we called the Island *Stingray* Isle after the name of the fish."

That story and these notes you will find to be typical of the times. The professional life of a few distant colonial doctors is too obscure to be dignified with the name of history and an extensive narrative; mostly they played their humble parts with hundreds of others, and are consigned to a blameless oblivion.

In this same year 1608 Anthony Bagnall, "Chirurgeon," sailed with Smith upon the Chesapeake; but of him and Russell, as of Wotton,[3] we hear little. Three adventurous spirits, let us believe, they appear to us out of the mists of those early days, and disappear.

Then came Dr. Lawrence Bohun in 1610, and Dr. John Pott in 1624, temporary governor in 1628.

In the history of medicine great names stand forth and mark events, but in the early history of American science great names are lacking and great events as well. So the

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[3] Toner mentions "Dr. James Woolton" as Surgeon-General of the colony in 1607. Probably he means that Thomas Wotton, "Chirurgeon," of Captain Smith's narrative.

interest to us is not so much in the men and what they did as what kind of men they were and what the life they led.

In Virginia we find them coming in scattered ships, rarely, adventurous, often returning home; then infrequently to settle, to take up the life of the wilderness, to bear their part with other pioneers, humble, little honored in history. Names dear to Dryasdust but of small moment to others.

But whatever the individual merits of the early Virginia doctors, they made a beginning of one good work, the completion of which still lies heavily upon us. They stirred up the Assembly to pass laws regulating medical practice. This was in 1639, when the Legislature of the colony was but twenty years old, the year before the summoning of that famous Long Parliament of Charles I.; and further laws they passed in 1661, the year after the restoration of Charles II. Of what value these laws may have been it is impossible now to say, but they were needed sadly enough.

Throughout the colonies quackery flourished luxuriantly with little let or hindrance. The great distances, the infrequent needs of the people, the lack of any high medical standard, and the loose methods and credulity of most of the regularly licensed men gave an opportunity to what we pleasantly call "irregular practitioners" such as to this day the country has not outgrown.

That first law, passed on October 21, 1639, was "an act to compel physicians and surgeons to declare on oath the value of their medicines."

So Virginia was the first to try some feeble beginning of reform; and to one glancing back over those early chaotic days Virginia must be remembered for these two facts: that thither came the first surgeon, Wotton, whom we know; and that there first the law demanded better things.

Now, there is something good for which we may remember that foolish James in whose reign Harvey taught. He it was who issued patents to the London Company for the South and to the Plymouth Company for the North; and, having remembered this, we need think of him no more.

To Virginia came the two surgeons and Dr. Russell; but not until 1620, thirteen years later, was the science of Europe brought to Plymouth in Massachusetts Bay. Dr. Samuel Fuller was the bearer of that science,—a man of some moment, let us believe; versatile, devoted, a true Pilgrim in the land. Some few words about this ancient Fuller must be said, because he stands for a type notable in those early New England days, and because the practice of the man illustrates well the science of the times in which he lived. The light we get upon him is not very clear. Patience, faith, and imagination are needed to project one's twentieth-century vision into the mind of a simple, credulous country doctor of the seventeenth century.

Samuel Fuller was a church deacon—no sinecure in those days, but the important business of life. Dr. Green [4] guesses that he would have preferred the title "Deacon" to that of "Doctor." Very likely. Indeed, there is no evidence that he held the M.D.,—a rare distinction here in that century; so "Deacon Fuller" he doubtless was. The story of that first winter in Plymouth needs no telling here, but we must believe that there was enough practice for Deacon Fuller and his faithful wife. He was the first physician in New England, for some time the only one, and, most happily for the community otherwise so sad and stricken, he had brought a scanty stock of drugs. He came here, then, among the first, already

[4] S. A. Green, A Centennial Address, Medical Communications to the Massachusetts Medical Society, 1881.

grown mature, practised for thirteen years, and died. His wife was taught his work in some rough sort,—to act as midwife at least,—and both together served their neighbors well.

It was told with pride that Deacon Fuller's medical duties took him even to Salem and Charlestown, and that his opinion was held in high esteem by Governor Endicott. Many of the people were afflicted with "scurvy and other distempers" peculiar to their hard circumstances, and Deacon Fuller went among them and "met with great success in his practice."

Hard, constant physical work, long hours, heat and cold; all that, as well known now as then, we must believe he bore. Besides, he did some farming and wrestled long in prayer.

We cannot help surmising what the mental state could be of those ancient doctors when they planned their curious remedies. In all seriousness, Sir Kenelm Digby wrote to the younger John Winthrop this recipe; it illustrates the times and minds of men in 1656:

"In the mean time let me tell you of an easy medicine of mine owne that I have seene do miraculous cures in all sorts of vlcers and in mending soddainly broken bones wch I conceive it doth by carrying awaye by vrine the ichorous matter that infesteth such maladies; and then nature healeth and knitteth apace, when nothing hindereth her. It is this: Beate to a subtile pouder one ounce of Crabbes eyes (in latin called oculi cancorum) then put upon it in a high glasse (because of the ebullition) fore ounces of strong vinegar. It will instantly boyle up, extremely: let it stand till all be quiett—then strain it through a fine linon—and of this liquor (wch will taste like dead beere without any sharpness) give two spoonfuls att a time to drink three times: and you shall see a strange effect, in a weeke or two."

Just one more and we need not worry ourselves further

with such. This is from the receipt-book of John Wadsworth, of Duxbury:

"This Receipt cost me fifty pounds by count, and I pray yt you would not expose the same without good fee: this for a canser proves exelant, and if in time applied will cure a canser humor. Take 3 frogs and put ym into a deep airthen Basen and power upon them as much swete oyel as will cover them, put ym into a hot oven and let ym stand a quarter of an houre: then turn off the remaining oyel and dip tow in it and apply to the canser; and for a plaster you must take the yolkes of 2 eggs, Burnt Allow, 1 oz. Boal armonick, 1 oz., Bay salt one half oz. Bruse all to a fine pouder and mix up with yr yolkes of eggs and apply in form of a plaster to the sore every 3d day. Give a portion of a spoon of salts to cool the hete of the Blood; this alwaise will carry off a canser humor if timely applied: the person must make them constant Drink canser roots tea. . . . We may att sartain times apply a tode cutt in two to the wound two or three times a week the nature of yr tode is such yt will draw out the sharp hot canserous and pysonous and if you proseded in this matter you may cure any canser." [5]

These two dreary recipes feebly illuminate several phases of ancient practice. The absolute ignorance of the nature of cancer and its diagnosis, as well as of the action of the proposed remedies, is not surprising; but the credulity of the writers is amazing and carries us very far back into the dark ages. Whatever the preposterous practices of our ancestors during the past two centuries, the best of them certainly have not trusted blindly to their own remedies nor, like quacks, boasted their virtues.

And then that paying fifty pounds for a secret remedy! The remedies are curious and amusing, if you choose, but

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[5] Francis H. Brown, M.D., The Practice of Medicine in New England before the year 1700, in manuscript.

they show us how far removed as yet was medicine from science.

Truly that was an era of barbarism, though it struggled towards the light. Harvey was living and Descartes. The truth was being sought, but as yet, for us in rude America, crudeness and error reigned.

So Deacon Fuller died. The records note two other facts. For near a hundred years the births of children were supervised by women—midwives they called them. Some sort of skill, perhaps, they had. And largely medicine was held in part the work of ministers, and statesmen took a hand. The Massachusetts exodus was thoughtfully prepared. In planning emigration, the clergy sought to learn their duty to the body as well as to the soul. "Medical missionaries" would be our term. Highly trained and scholarly the records call them; doubtless they were, but we have gleaned some knowledge of the science of that day. The statesman, trained in medicine, who interests us most was John Winthrop, Jr., who was born in 1605 and in 1657 became Governor of the New Haven Colony. Harvey's contemporary almost, he studied medicine before his coming here, perhaps with that great master. Of good repute in science, let us think, because he became a founder of the Royal Society.

It is hard to say what may have been the medical service and value of Winthrop to the colonists, but it would seem that, like Endicott and Winslow, the latter of whom is also reckoned among the doctors, he was rather a Board of Health and a general supervisor than a constant active practitioner, summoning other physicians in time of stress and taking their advice.

We must remember, too, that the women of that day, both gentle and simple, professed some skill in drugs as well as in midwifery, and that, like the Drumtochty folk, the people called a doctor only for their dire needs.

What avails it, then, to name names? The supply of

physicians increased constantly with the growth of the colonies. In the three generations prior to 1692 Savage mentions one hundred and thirty-four men who were doctors, in name at least. So says Oliver Wendell Holmes, after painful search. J. M. Toner, the most careful student of American medical annals known to me, and F. H. Brown give exhaustive lists. So those ancient men are rescued from oblivion,—mostly to little purpose.[6]

Some few are better known for other things than medicine. Presidents of Harvard College were among them, like John Rogers and Leonard Hoar, or the bearers of famous names, like Henry Saltonstall, son of Sir Richard.

To me the most interesting is humble Robert Morley, of whom we read this: that it was "agreed with Robert Morley, servant to Mr. Andrew Mathews, late Barber Surgeon, to serve the Company in New England for three years, the first year to have 20 nobles," etc.

That is a grievous fact, to surgeons notable; but it was common enough. Indeed, it was not only the barber surgeon who became servant to some man, but the distinguished and learned physician had his patron. Harvey, Locke, and Sydenham knew their masters. To us, who feel science to be the most important work of men, all this may seem humiliating; but, after all, it was not so to them. Our art held no great place in people's eyes. The

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[6] Here is a list of eighteen of them, perhaps the best-known Massachusetts physicians of the seventeenth century: John Fisk, of Salem, arrived 1637; Giles Fairman, of Boston, 1634; Robert Child, arrived 1639; William Gager, of Boston, 1630; Comfort Starr, of Cambridge, 1638; Samuel Bellingham, Harvard College, 1642; Leonard Hoar, President of Harvard College, 1672; Henry Saltonstall, Harvard College, 1642; John Glover, Harvard College, 1650; Charles Chauncey, President of Harvard College, Plymouth, 1638; John Rogers, President of Harvard College, 1682; Samuel Seabury, Duxbury Circ., 1650; James Oliver, Boston Circ., 1640; John Pratt, of New London, 1636; John Clark, Sr., of Boston, 1650; John Wilson, Harvard College, 1642; Thomas Boylston, of Brookline, died 1695; Robert Morley.

church came first and then the law. A great nobleman was a very real thing indeed, and taken seriously in ancestral England. But now what matters who their masters were? Sydenham and Locke we know, and even plain, wise Stubbe; but who their patrons were, what mortal cares?

The surgeon was subordinate to the physician until long after those days. That is another curious distinction of the time before clear scientific reasoning. The occult, obscure, metaphysical, unprovable thing, about which men might wrangle through their lives: that was held quite fine and dignified—the most worthy calling; but the thing capable of clear physical proof, which appealed to the senses readily, which one could run and read: that was deemed unworthy of great minds. So the pompous, mysterious physician was a great man; the practical, progressive, useful surgeon a humble barber.

That tells us why for all those years surgery so outstripped medicine in real advance. What the surgeon knew he first must prove, and so he kept his feet on solid earth. The vaporings of those other theorists gave *medicine* no rock on which to build. The first real forward movement in the physic of to-day began when physicians learned that they must use their senses. And when to the unaided senses they could add instruments of precision, then the ground became very firm indeed. What is the feeble eye without the microscope, or what the touch without the thermometer?

Such are the thoughts that come to mind in reading of those days. The Wottons, Fullers, Winthrops, Morleys, Clarks, press blameless on according to their lights.

So much for New England in the first struggling century.[7] A time of sternness and high faith it was, and

[7] Russell's Recollections of the Pilgrims; Pell's Annals of Salem; Winthrop's Journal.

much credulity; untouched by one great falsehood, though. We cannot learn that even then physicians aided or abetted Mather in persecuting witches and the like. Though they made no protest, for their good judgment, be it said, they nowhere sided with the madness. The first person executed for witchcraft was Margaret Jones, physician and doctress. It appeared "that she had such a malignant touch as many persons were taken with deafness or vomiting or other violent pain or sickness, her medicines, though harmless in themselves, yet had extraordinarily violent effects, that such as refused her medicines she would tell that they would never be healed." Truly a most irregular and short-sighted person; but she expiated her sins.

The fate of Mistress Jones connects her with this narrative not otherwise than that she was a doctress.

Another note of those times, observed by all writers, is the fact that long before the witchcraft business the first American medical publication of which we have record appeared in Boston: "A Brief Rule to guide the Common People of New England How to order themselves and theirs in the Small Pocks or Measles," by the Reverend Thomas Thacher, the first minister of the Old South Meeting-House. One must think well of the patience and cultivation of the "Common People" in those days. The "Brief Rule" wanders sadly through four difficult columns, a very miracle of words and obscurity.

This much becomes salient when we think of the New England medicine of the seventeenth century: that the immigrants brought with them the best they could from the Old World, Deacon Fuller leading them; that many doctors came among us in proportion to our numbers, mostly educated in England; some few were of ourselves, instructed here in private, no college of medicine being yet established; fewer still of our young men went abroad seeking the degree; and finally, in Boston was first pub-

lished that brief medical tract of which the successors now flood the land.

So, leaving Massachusetts Bay, let us proceed to see in what rough way the other colonies were coming on.

One cannot tell the story of American medicine as a whole, especially in those early years. There was no whole, such as England or France could show. There was no Capitol. As each colony developed its own political existence, so it developed its medical annals; most especially in the early days, when little intercourse existed between the colonies. There were, however, four principal medical centres before the Revolution; and, if we count Virginia and Maryland, there were six; but the principal centres were naturally the leading seaboard cities, New York, Philadelphia, Boston, and Charleston.

Let us turn to New York, perhaps, even in those days, the most interesting of our towns, and see in what manner medicine was faring there.

New York was the only one of the thirteen American colonies which ever changed owners,—owners with white skins, of course; we never count our copper-colored friends. It not only changed owners, but it changed its people and its language. From 1608 to 1664 it was all Dutch; from then on it was English, except for the brief Dutch irruption of 1673,—a nearly equal division of time in that century. So we find, as we might expect, Dutch doctors and English doctors and some few Huguenot doctors in New York before 1700. They were men of education quite similar to that of their New England neighbors, some few of whom, indeed, had made a sojourn in Holland on their way hither.

Now, the New Netherlands, like the English colonies to north and south, was controlled at first by a company—the Dutch West India Company (succeeding the United New Netherlands Company)—which began its colonizing in 1621, and by all these companies there was some pro-

vision made for the medical care of the pioneers. Here is what the Charter of the Dutch Company provided:

"The Patrons and Colonists shall in particular, and in the speediest manner endeavor to find ways and means whereby they may support a minister and school master; and thus the service of God and zeal for religion may not grow cool and be neglected among them; and that they do for the first procure a comforter for the sick," etc.

"*A comforter for the sick;*" truly a quaint and pleasant thought. Many to-day are wont to feel that such is woman's work. But the first comer was not that sort of a comforter; he was a ship surgeon, Mynderts van de Bogaerdet by name, sailing on the "Endragh" in 1631. Like our Virginia Wotton, he came and went. Then in 1637 came one of another type, such as was Deacon Fuller in Massachusetts,—a steady, well-equipped man, a Huguenot and "gentleman," Johannes La Montagne. This was the year before William Kieft was appointed governor, and began that active opposition to the English on the Connecticut and to the Swedes and English at the South, which ended only in 1664.

Those years in the '30's are interesting, for they mark many events. In 1630 came the settlement of Boston, and the same year the Carolina grant; in 1632 the Maryland grant; in 1633 Wentworth and Laud began that series of arbitrary acts which led to civil war; in 1636 Harvard College was founded,—the first American college. In the same year came the establishment of the Providence Plantations and the New Jersey grant. The year 1637, in England, was marked by the trial of John Hampden for his refusal to pay ship money, by the frustrated attempt of Hampden, Pym, and Cromwell to sail for America, and here, by the arrival of La Montagne at Manhattan Island. In 1638, in Scotland, was the signing of the Solemn League and Covenant, and in America the beginnings of the Rhode Island and New Haven colonies.

In 1639 the Virginia Assembly passed that first medical bill of which we have made note.

A strange mingling of small things with great, all this. Politics outweighed science; but the times were full of life and expansion had begun.

It was in such days that our Huguenot gentleman came to New Amsterdam and took up his vocation as "a comforter for the sick": the first New York physician.

As with most of those early doctors here, we know little of M. La Montagne. He wrote nothing medical of moment, but he followed the best practice of his times. He is described as learned and skilful. Now, there are two suggestive facts about the doctors who went earliest to New Amsterdam. The stress of their surroundings forced them into all sorts of practice,—into surgery as well as medicine,—so that they acquired the kind of practical facility which surgery alone can give; and they were mostly active in the affairs of the colony as office-holders and magistrates. Those were primitive days; the authorities were very considerable personages and were held in respect, and we must believe that our physicians were advanced to positions of trust and dignity because they were men of ability who improved their talents. Such a one, doubtless, was La Montagne; at once prominent, it appears, for in 1641, only four years after his coming, he was sent with fifty men on that fruitless expedition to defend Fort Good Hope, by the Connecticut River, against the expanding Puritan English, an expedition fruitless, but significant of many things. So he returned. He remained prominent in office, we are told, and let us trust that, like Deacon Fuller, he met with "good success in practice."

La Montagne was, however, not alone in Manhattan. The year after his coming there arrived Gerrett Schult and Hans Kierstede, surgeons. This was in 1638. The latter lived down to 1661, almost to the end of the Dutch

days. Then there was Samuel Megapolensis, born in this country, graduated from Harvard in 1657, and an M.D. of Utrecht; a minister as well.

There were very few others; the colony was a small one, and if, for the sake of impartiality, we name Abraham Staats, Vanevenger, L'Orange, J. Hughes, Jan du Parck, Gerardus Beekman, and Alexander C. Curtis, there is nothing more to say. The English name Curtis strikes us and the French L'Orange; but, after all, they made no history, and, even with the coming of the English, they changed not, but went their several ways, Beekman living until 1724.

With the coming of the English, however, a law of practice was put forth of interest to us, because, like the Virginia law of 1661, it was an earnest forward step; futile, indeed, since it demanded proficiency, but provided no cure for inefficiency. Such as it was, though, it provoked Yankee admiration, and came shortly to be copied verbatim on the statute books of Massachusetts Bay.[8]

[8] Duke of York's Laws, 1665, The General Laws and Liberties of the Massachusetts Colony, Cambridge, 1672. "It is therefore ordered that no person or persons whatsoever, employed at any time about the bodyes of men, women or children for the preservation of life or health: as Chirurgeons, Midwives, Physicians or others, presume to exercise or put forth any act contrary to the known approved Rules of Art, in each Mystery and Occupation, nor exercise any force violence or cruelty upon or towards the body of any whether young or old (no not in the most difficult and desperate cases) without the advice and consent of such as are skilful in the same Art (if such may be had) or at least of some of the wisest and gravest then present, and the consent of the patient or patients if they be *mentis compotes*, much less contrary to such advice and consent. Upon such severe punishment as the nature of the fact may deserve; which Law never-the-less is not intended to discourage any from all lawful use of their skill, but rather to encourage and direct them in the right use thereof, and to inhibit and restrain the presumptuous arrogancy of such as through presidence of their own skill or any other sinister respects, dare boldly attempt to exercise any violence upon or towards the bodyes of the young or old, one or the other, to the *prejudice* or hazard of the life or limbe of man woman or child."

One more name let us glance at in the English period: Johannes Kerfbyle, of Leyden, notable only because he made an autopsy (medico-legal) which is on record,—erroneously said to have been the earliest in America.

That is the brief story of the seventeenth-century Knickerbocker men, and they differed from their Yankee brethren in this respect only, that, in proportion to their numbers, more of them held University degrees.[9]

As in the case of Virginia and New England, those feeble New York beginnings of simple country doctors led the way to a wider science. Quickly with the opening of another century we pass to greater things; meantime let us say one word of our other colonies struggling towards modern times.

Of all the American colonies, Pennsylvania started in most thoroughly equipped with what we call the necessities of life. It came into existence later than most of the other thirteen, its pioneers found themselves already surrounded by a kindred folk, and much of its mountains and forests had already been explored; it therefore offered peculiar advantages to settlers who were neither "adventurers" nor martyrs, and its equipment was that of a well-rounded community. It had but eighteen years of the seventeenth-century life, however, so that its record is a short one. When Penn landed at New Castle, the third generation of white men was growing up in Boston, New York had been British for nearly twenty years, and Virginia was an old colony with wide-spreading plantations and an experienced Legislature.

Something, too, might be said of the settlements that struggled feebly on the Delaware (or South River) before Penn's days. Indeed, one cannot omit telling of the visits to New Jersey of George Fox, the Quaker leader, in 1672,

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[9] History of the New Netherlands; Documentary History of New York; Broadhead's History of the State of New York.

and of his famous surgical case. That excellent enthusiast recounts how his fellow-traveller, John Jay, was thrown from his horse and had his neck broken:

"I got to him as soon as I could, and feeling on him concluded that he was dead. As I stood pitying him and his family, I took hold of his hair, and his head turned any way, it was so limber. Whereupon, throwing away my stick and gloves, I took his head in both my hands and setting my knee against the tree, I raised his head and perceived there was nothing out or broken that way. Then I put one hand under his chin and the other behind his head, and raised his head two or three times with all my strength and brought it in. I soon perceived his neck began to grow stiff again and then he began to rattle in his throat, and quickly after to breathe. . . . The next day he was pretty well and many hundreds of miles did he travel with us after this."[10] This is an interesting story, told in truthful style, and to the surgeon highly credible, as if there had been a dislocation of atlas upon axis.

Ten years later than George Fox, William Penn came up the Delaware to establish a popular government and make his treaty with the Indians. With him and his company of one hundred—a third of whom died of smallpox on the voyage — came Dr. Thomas Wynne, an accomplished Welshman. If we can trust the records, Wynne was the most thoroughly equipped and learned physician who, until then, had visited America. The same we have found to be said of La Montagne, the Huguenot gentleman, and of various New Englanders. Now, our knowledge of these worthies is gleaned from obituaries and biographies, not always the most truthful sources of information; often the tributes of grateful patients. So it comes about that the medical historian, groping after facts, lights often upon a smooth but treacherous way. One

[10] Journal of George Fox, London, 1694, p. 370.

began to tell the greatness of good Deacon Fuller, but Admirable Montagne and Erudite Wynne have thrown us all aback. Let us compromise, then, with the probable truth, that all of them were notable in their communities of earnest, laborious men; useful and prominent as good citizens rather than distinguished as scientists and leaders in their art.

It was too soon yet to look for greater things. Indeed, what American statesman or jurist or clergyman of those days was marked in distant Europe? Of Cotton Mather some had heard, and there their knowledge ceased.

There are two facts worthy of knowledge about those earliest Philadelphia doctors. In some way many were kinsmen,—nearly all were Welshmen,—and they founded American families which in one line or other have persisted to this day. More than in New York or Boston, medicine has been a popular and, in some sort, a socially distinguished profession in Philadelphia.[11] Among such founders were Dr. Daniel Wills, who was in Burlington in 1682; and Dr. Edward Jones, in 1682, who married a daughter of Wynne. In turn, his daughter, Mary Wynne Jones, married John Cadwalader, whose descendants still remain.

Equally conspicuous with Dr. Wynne was Dr. Thomas Lloyd, a cultivated Welshman, who came here in 1683. He, too, held high colonial rank, — Deputy-Governor (himself protesting much), President of the Council, and Keeper of the Great Seal. Of them all, though, Griffith Owen was the most "successful in practice," a friend of Penn; in politics an active, forceful man.

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[11] Even before Wynne there were other doctors. Among the early Swedes on the Delaware were Hans Janche, 1644, and Timon Stiddem, 1654. Among the Dutch were Jan Oosten, 1657, and William van Rasenberg, 1658 (Casper Morris in Memoirs of the Historical Society of Pennsylvania, 1826, vol. i. p. 350); and still others were Wetherill, Stacy, Collins, and Abraham Pierson, Newark, 1667.

Such were the men who brought medicine to the founding of Philadelphia. Of a generation and a learning beyond the pioneer doctors of other colonies, they usher in the expansion of another century, to which they properly belong.

In reading the medical annals of our country, one realizes quickly and vividly how small and feeble we were before the year 1700. New England, Virginia, and New York had seen the birth of three generations; so, too, perhaps, had Maryland; but Pennsylvania and even the Carolinas were new. New Jersey and Delaware, though not so young, were unformed, and all the rest was wilderness to English-speaking men. So we see that of the doctors and their records in those days there is little to say. Of Maryland there should be a word, and of Baltimore, so proudly placed to-day in the scientific world; but her seventeenth-century record is all but inarticulate.[12] That ancient Walter Russell, who cured John Smith with "oyle," is claimed by Maryland on account of that very deed done on her soil; two or three others are named, but there are no more until we pass by near a century. Somewhat the same is true of Charleston. There centred nearly all the learning south of the James River for very many years; but for us Charleston's records count for nothing until we pass the 1700 mark.

It is not altogether easy to say just what were the colonial conditions calling for medical service in the seventeenth century. Children were born without troubling the doctors much, we know; but after the survival of the fittest in those first strenuous years the ordinary trifling ailments so familiar to an overcrowded civilization were very little known. The sturdy frontier folk, leading a life of exposure, much in the open, ignorant of cities, had little need of doctors except for the major ills. They were

[12] J. R. Quinan, Medical Annals of Baltimore from 1608 to 1880.

educated in the rudiments, intelligent, and not afraid to work with their hands. The homely life of the day was free, if not joyous. Earnest, God-fearing men who drove the plough, read their Bibles, and sent the eldest son to Harvard College, and women who treasured bits of family silver, discussed the state of the elect, and did their own cooking were not likely to be the parents of dyspeptic girls or boys, unable to stand the rigors of the time.

We read, however, of grievous surgical conditions and fierce epidemics sweeping over the land. Smallpox, yellow fever, scurvy, "typhus" (much of which seems to have been typhoid), dysentery, influenza, and the various contagious eruptive fevers of childhood were the foes with which the doctors mostly had to contend; and, as we may suppose, their practice did not differ from that familiar to the Europe of their time.

In the New York and New England records especially we find many accounts of such epidemics, which sometimes reached the most serious proportions. New England more than the others was invaded by smallpox, the first recorded visitation of which seems to have swept off hundreds of Indians a few years before the landing of the Pilgrims in 1620. Douglass, in his "Summary," mentions ten epidemics. New York suffered in the same way, but was singularly free, says Colden, from consumption and other pulmonary diseases.

So, epidemics were most common in the Northern colonies, where ships came often to the larger ports; though the Carolinas, Virginia, and Maryland did not altogether escape. In 1699 Philadelphia was wasted by a grievous outbreak of Barbadoes fever, which may have been yellow fever, though that is by no means clear.

The medical literature dealing with such matters was developed in the eighteenth century. No useful medical essays and few accurate descriptions were written before 1700. The "plagues" that came were often "the hand of

the Lord" shown in wrath. Folk suffered and endured, but of comments there were few. We can see, though, that, in spite of their scant medical learning, those old doctors were brave and faithful men, devoted to their people and no mean comforters of the sick. The lapse of years, the change in modern thought, in dress, in language almost, confuse our vision and our point of view; but those were very real and human folk,—our ancestors; their doctors knew them well; they waited patiently, and time brought better things.

CHAPTER II.

THE EIGHTEENTH CENTURY. COLONIAL MEDICINE.

On January 1, 1801, Dr. David Ramsay, the historian, read before the Medical Society of South Carolina, at Charleston, "A Review of the Improvements, the Progress, and the State of Medicine in the Eighteenth Century." Painfully one struggles through his pompous periods and obscure phrasing; but one fact stands out luminous, that at the end of the eighteenth century even so careful a student as Ramsay knew little of the accomplishments of his immediate predecessors. Just as to-day most of us think of the times before Lister and Pasteur as belonging to the Dark Ages, so a hundred years ago Rush was the prophet and former times were of small moment. Yet those former times, like former times in all ages, were needed for the better things to come.

The hidden currents which, since the Renaissance, had been sweeping towards the political and intellectual enfranchisement of the eighteenth century were not unfelt by science, and the American colonies of Great Britain got their share.

To one who observes the progress of the race it appears that political and scientific development are apt to go hand in hand. So it was with us, and the cause is obvious enough. With the larger life and expanding fortunes of the colonies, from 1700 to 1775, democratic thought began to prevail at the same time that rational observation, deduction, and record began to be made. Then came the Revolution, marking an era in our science as important, almost, as in our politics; not so violent, perhaps, but no less certain.

When one thinks of the progress of events in the America of that century during the first seventy-five years, one finds that wars and rumors thereof occupied very much of the time. From 1702 to 1713 there was Queen Anne's war; for the next twenty-five years, though there was nominal peace, the Indians ceased not their troubling. From 1739 to 1748 the Spanish war exercised mostly the South, especially Oglethorpe's new colony of Georgia; and the French war of 1744-1748 was signalized in New England annals by the first capture of Louisburg. Then came the "Old French and Indian War," most familiar in colonial history, bringing fame, good or bad as the case might be, to Braddock, Washington, Franklin, Montcalm, Loudon, Webb, Abercrombie, Johnson, Amherst, Howe, and Wolfe.

There are other names which it behooves us to note somewhat: humble names mostly, of small account to the historians, but something to us; names honorable in science; some two or more worthy even of record by the writer of great events. Colden, Lieutenant-Governor of New York, contributed something of value; Shippen and Morgan did the same in Pennsylvania; so, too, did Boylston and Mather in Massachusetts, and Chalmers, Bull, Moultrie, Lining, and Garden in South Carolina. Those are the men to whom American medicine in the eighteenth century owes most, and they may be remembered for these four things: they introduced inoculation for smallpox, they made a beginning of our medical literature, they established medical schools, and they laid the foundations of hospitals. Small things, all of them, perhaps, contrasted with those warlike events and names, but looming larger with the lapse of years.

The story is a simple one when all is told, though not without value to the student of men.

When the eighteenth century opened the population of the English colonies in North America was about three

hundred thousand; when it closed the United States numbered nearly four millions; and at the beginning of that era, of all the foes our ancestors faced,—hardship, famine, pestilence, Indian and foreign wars,—the most dreaded was smallpox.

In these days of public hygiene few of us, laymen or physicians, appreciate the ancient prevalence of smallpox and the dread of it always present in the hearts of men. One writer[1] has said that if an observant modern man could be transported to the London streets of a hundred years ago, the most noticeable thing he would observe about the men and women would be, not the dress or language so much as the ever-present pock-marked faces. For centuries, even before the dawn of history, smallpox raged.[2] Sixty per cent. of mankind were attacked by it and ten per cent. died of it.[3]

In the time of the epidemics whole villages were depopulated and savage tribes were annihilated. Its spread was world-wide. The Persian Rhazes, in the ninth century, was the first to write clearly of it; but the Chinese tell of ravages centuries before that, and claim the use of inoculation as early as A.D. 59.

Like most ancient diseases, it was said to come from the East,—from India, probably, the home of the race. By some writers it is thought to have remained there endemic, and not to have reached Europe until brought by the returning Crusaders. America, at any rate, was free from it in the old Indian days; but soon after the coming of Columbus it spread to the Western Hemisphere, appearing first in the West Indies in 1507. The island

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[1] Macaulay.

[2] Stephen Brown, of New York. Prize essay on Smallpox, American Medical Recorder, January, 1809.

[3] August Hirsch, Hand-Book of Geographical and Historical Pathology.

Indians died of it like sheep; among no people was the mortality ever so great.

Smallpox soon spread to the Continent. The Englishmen found it here when they came. Indeed, that famous pestilence which invaded New England shortly before the Pilgrims arrived was smallpox, without doubt.

Says Cotton Mather,—

"The Indians in those parts had newly, even about a Year or Two before, been visited with a prodigious Pestilence as carried away not a *Tenth,* but *Nine Parts* of *Ten* (yes, 'tis said Nineteen of Twenty) among them so that the *Woods* were almost cleared of those pernicious Creatures to make room for a better Growth." [4]

But the pestilence did not spare the "better Growth." No sooner were the English settlements made than smallpox began to be known in their midst. Douglass reports a series of epidemics. There was the Indian one of 1617, when the Pawkunnawkutts and Massachusetts were nearly wiped out of existence.[5] Then those later epidemics which befell the colonies in 1633, 1663, 1666, 1668, 1677, 1688, 1690, and 1702,—grievous years for our ancestors, long to be remembered, and carrying desolation to thousands in the infant colonies.

Two of the most notable advances in the science and practice of medicine which have been made in this country originated in Boston. Both received their initial impulse from men not strictly within the ranks of physicians, and from both arose notorious controversies and scandals almost without precedent in modern science.

In the first half of the eighteenth century the introduction of inoculation for the smallpox rent the profession and society as well. In the first half of the nine-

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[4] Magnalia, Book I., Chapter ii. p. 7.

[5] Packard and other writers question the diagnosis, but the evidence points most strongly to smallpox.

teenth century the introduction of ether anæsthesia raised a storm of jealousy and controversy which to this day has hardly subsided.

In some sort, the first of these events was so conspicuous and so important in medical annals that the story of it and of the men concerned illuminates those days. The leading *dramatis personæ* were four, one of them already notable, Cotton Mather; the others were William Douglass, Zabdiel Boylston, and Lawrence Dal 'Honde. There were many lesser ones; youthful Benjamin Franklin most articulate among them.

Some brief words of these men must needs be said.

Cotton Mather, the distinguished politician and divine, is too well known to need remark, and the recent work of Mr. Barrett Wendell, instinct with life, has brought him familiarly to modern sight. In 1721, the year of the inoculation fight, he was beginning to grow old, the "Magnalia" was many years written, and the witches had long been burned. Still, his active mind concerned itself with many things, not least of all with the science of the day.

William Douglass was one of the most interesting Bostonians of the first part of the eighteenth century.[6] In certain ways he reminds one of Cotton Mather: obstinate, pessimistic, a hard fighter, a good hater, a worker; but a scamp, perhaps, certainly a liar. Everything one hears of him is either good or bad. He was born in Scotland about 1690. His education was broad, in the old sense. He was graduated in medicine and afterwards spent some time on the Continent, especially in Paris, for study and observation. Then he drifted to the West Indies and America. Passing through the middle colonies, which he disliked, he came at last to Boston, which

[6] T. L. Jennison, in his Life of William Douglass, praises him without stint.

he despised, and there he settled. The wonder is that he stayed there; he detested the Puritans, their creed, their mode of thought, and their manner of life. As simple James Thacher, with pleasant lack of humor, puts it, "his notions of religion were very loose and unsettled."

On his coming to Boston, Douglass began at once to bestir himself in various ways. He was far from inarticulate, and with the insolent freedom of a youthful traveller he aired his opinions of men and affairs. His introductions were good, and he was an ill man to overlook. He had brought letters to Mather, but Mather snubbed him. Here, indeed, the trouble began. It was in 1718 that he came to Boston. Three years before the inoculation days,—three years not wasted by our adventurous Scot,—busy with tongue and pen, he had become a personage ere ever the trouble began. Of him more later.

Perhaps the most distinguished, if not the most interesting physician of the little Boston group of those days was Zabdiel Boylston, an orthodox person certainly, very properly and securely placed. His father, Dr. Thomas Boylston, an Englishman with the M.D. of Oxford, had settled in Brookline, Massachusetts, in 1635, the year before the founding of Harvard College, and in Brookline the son Zabdiel was born in 1684,[7] so that he was about six years the senior of the irascible Douglass.

If we are to follow the record of the credulous Thacher, young Boylston studied medicine with his father, to whom we must credit not only astonishing physical, but abnormal mental powers, for he played the pedagogue in his ninetieth year. The son also studied with Dr. John Cutter, a man of some local reputation, and to him, doubtless, he owed most. That he received the doctor's degree does

[7] The son of an ancient man, it would appear; but the dates as given by Thacher seem correct.

not appear. A studious, earnest, intelligent man he proved himself, at all events; given to botany and kindred pursuits; married to Jerusha Minot, and the father of many children.

It is a great name in Boston, with some reason, let us believe, for he represents that type of steady conservatism joined to scholarship and readiness to accept the new in demonstration which we admire in all ages. Some touch of genius, too, he must have had; certainly he saw his occasion and seized it,—his hand turned to the need of the hour, his eye betimes on the distant future. Surviving the present storm, he lived for many years, outlasting his old adversaries,—Douglass among them,—converted at last; and he died almost at the end of the colonial chapter, in 1766.

Much less notable than the men already mentioned was Lawrence Dal 'Honde, a busy Boston physician. We know very little of him beyond his connection with the inoculation business. He was a Frenchman who had had a long career with the armies of his own people; a checkered career, it seems, profitable for the experience of larger things it gave him. In the year 1721 he was no longer young,—fifty years old at least; but a strong, bitter, and perhaps unscrupulous partisan. His opponents say that he told lies, which is doubtless true, though there is no special evidence of that in the quotation which they cite.

Such were the four men, as we gather their obscure, distorted history; very human, indeed, and of types not always associated with our notions of Puritan Boston.

There is something in the nature of our race that prompts us passionately to oppose the man who comes to remedy great evils. History is full of such evidences. The case of Socrates is not unique; but, after all, the truth at length prevails. In their blind anger men sacrifice their benefactors, and then deify them when convinced at last

that no false prophet was there. It is the charlatan and impostor that we fear; so we kill the man of good works, and later tell how he was no knave.

Something of the old story came near being told in Boston in those early days, with Boylston as the victim and Douglass in the rôle of malignant high-priest. The tragedy was not played out; no blood was spilt, but not from lack of appetite.

When Lady Mary Wortley Montagu came from Constantinople in 1721, and told in London about the Turkish inoculation for the smallpox, it was promptly discovered by the wise that there is nothing new under the sun. Some form of inoculation had been practised for centuries among the peasantry in South Wales. They called it "buying the smallpox," and they pricked the virus in with pins. In the Highlands of Scotland, too, the practice was not unknown. There the operation was performed by tying infected threads about the wrists of children. The antiquity of the custom among Oriental peoples is well vouched for.

But all this after-thought is beside the mark. It is not antiquity, but authority which counts in therapeutics as in most other things of the world, and the authority of Lady Mary Wortley Montagu and her sponsors first gave inoculation a place among thoughtful people. Not without opposing tumult, however; heathen and Christian raged fiercely. The common people were frightened, the learned were sceptical and bitter, and the clergy preached against subverting the decrees of Providence and resisting the punishments of God. The sword of the Lord and of Gideon was held over the heads of the impious innovators. Indeed, the reverend gentlemen vicariously dispensed damnation with a freedom and assurance that would have done credit to their Puritan grandfathers.

In 1732 the Reverend Mr. Massey preached from the text of Job ii. 7: "So went Satan forth from the presence

of the Lord, and smote Job with sore boils from the sole of his foot unto his crown," concluding that "the cutaneous disease of Job was produced by inoculation from the hands of the devil, and the whole art was of infernal invention."

We are familiar with the vulgar opposition to vaccination at the present day,—an opposition based on fanaticism and ignorance, though rarely fierce; so we may imagine the virulence of the fight against inoculation two hundred years ago, based on a legitimate fear of contagion and worked up to a fantastic terror by popular ignorance and superstition. The same scenes were enacted the world over: professional outcries, clerical diatribes, legislative discussions, and mob violence.

Our American ancestors have taken credit to themselves that the institution of inoculation sprang up *de novo,* as it were, in our midst; not the gradual spread to our shores of a practice tried and proved in Europe, but started voluntarily and originally by our own people. Cotton Mather was at the bottom of it, and his part in the propaganda was not the least honorable effort of his active and varied career. The occasion brings the man, and it was so in this case.

When William Douglass came to Boston he brought an introduction to Mather, as we have seen, but was never able to make headway in that quarter. The strenuous old theologian took no interest in the voluble young sceptic, and though Douglass was forced to admire, and tried to cultivate the elder man, the compliment was in no way returned. Still, Douglass sought him out and, among other evidences of his regard, supplied him with the more recent scientific literature of the day, brought by him from London. Among such papers, Mather read, in the early days of 1721, when smallpox was beginning to prevail in Boston, the famous paper by Timonius, on "Turkish Inoculation." To the student of medical history it is no sur-

prise to learn that the paper, hitherto almost unnoticed, was already four years old.

Dr. Emanuel Timoni Alspeek, who was graduated both at Padua and at Oxford, was residing in Constantinople in the year 1703, and was then struck by the instances which he witnessed of the mitigated nature of smallpox when the virus was artificially communicated to the human frame. He wrote an account of his observations to Dr. Woodward, by whom it was inserted in the Philosophical Transactions of the year 1717. Pilarini, a Venetian physician, also published in 1715, at Venice, a statement of the success of the Turkish practice.

At the present day, with the rapid advance of medical science and with the daily press teeming with tales of new discoveries and methods, we know how frequently the imagination of the average layman is fired by the idea of some new "cure," and we know what humbug it all is, mostly. Somewhat the same conditions obtained in those old days of Mather, probably; the laymen exploited and the doctors scoffed, for it was the layman Mather who was fired, and the professionals would have none of it.

Mather's fire was as pardonable as his method of going to work was most courteously ethical. He neither practised nor preached, but went about his task in an orthodox manner. First he sent for his brisk young acquaintance, Douglass, to whom he owed his discovery, and told him what he had found. Would Douglass undertake the work? No, Douglass would not, and the prosaic historian, despite himself, gives us some feeble vision of the strenuous scene: the old scholar, earnest, convinced, dogmatic, insistent; the young scientist, incredulous, scoffing, obstinate, angered that this chance for a brilliant *coup* should have slipped through his fingers to be seized by a prying layman, and determined to minimize for his own purposes the value of the find. It was all too uncer-

tain and too new, he said. The community would not submit to the hazard, and the evidence in its favor was too scant.

So the interview ended with wrath on one side, with snubs on the other. But the old churchman had his blood up. If Douglass would not do it, he would find some one who would. The fight was on and it was to the knife. Without delay he went about it, and approached successively the leading physicians of the town. It was all of no avail. Douglass had secured the ear of his colleagues and of the public press. But the clergyman was undaunted, and, finding Boston deaf to his pleadings, he turned to neighboring Brookline and Zabdiel Boylston.

It would seem that Boylston could not, as yet, have been of any special note; still under forty, he must be regarded merely as a rising country doctor; by no means the old friend and comrade of the distinguished Mather, as has frequently been stated. But he was the man for the occasion, and he seized it, going about his work in proper conservative fashion.

There was no opportunity for preliminary experimentation as in England, where the Princess Caroline persuaded the King to hand over a batch of convicted criminals and pauper children for inoculation tests.[8] Indeed, so far as one may judge from the obscure records that we have of those days, Boylston was vigorously attacked by colleagues and press so soon as his purpose became known.

There were two parties to the contention, as we have seen, both powerful, and both fired with the zeal of eager conviction. The opponents were the doctors, madly indignant at the presumption of Boylston, and they carried their protest to the civil authorities and the public press. Very earnest men, mostly, but by no means imbued with

[8] Woodville's History of Inoculation, 1796; Morris's History of Inoculation, 1815.

the spirit of science. Ready to go any lengths, they alarmed the community, they petitioned the authorities, they aroused the mob. On the other hand, there was Boylston, fighting single-handed,—fighting his own profession; with a powerful backer, though, in the intrepid Mather, to whom controversy, polemical or otherwise, was as the breath of his nostrils. And Mather's authority with the clergy was still great. We have seen how certain of the ministers at first denounced the new practice; and doubtless they would have continued their philippics, but Mather was a prophet not to be ignored. So he rallied his spiritual forces and led to the fight.

It was truly an amazing spectacle, giving pause to the modern sceptic: the church applauding science, the faculty crying it down. But, after all, to the student of ancient days there is small cause for wonder. Do we not know how medicine was still a trade,—the barber surgeon not yet extinct; how new knowledge was kept a secret and jealously bought and sold; how a conservatism equal to that of the lawyers tied the doctors together in narrow guilds, dully guarding the secrets of antiquity? Theirs was not a profession, then, to attract the best intellects. A hundred years later law, the church, the army, the navy, led it in popularity; it was still but little removed from menial service. To it truth was a vague and unmeaning term. Those were the times of theories and "schools" and creeds, the manacles of progress. Doctors were wont to disagree in hostile bands, and to shout their foolish gibberish furiously, with shaking of fists from the house-tops. The laity took sides. Indeed, there was little dignity then; often the profession was held in slight esteem. That was the common aspect of the picture which Butler did not so greatly caricature. Some modest men, working quietly and seriously for better things, grasping feebly after facts, were the rare ones, as we know, and of such let us believe was the ancient Boylston.

But there was an intelligent clergy, well educated for those days,—far better read than the doctors; impossible to us now in matters theological, but even then seeking some freedom; dreary to contemplate, perhaps, but playing a part in their own little, throbbing world.

So the sight of these two hostile camps of Mather and of Douglass must not surprise us; quickly such sights became rarer. The world was nearing some sort of emancipation. Laymen take part betimes to-day, and choose their "school," but the world of science moves serenely on. Of all that we must take note in future pages.

The Douglassites in old Boston forced the attack, hoping, perhaps, to frighten and rout the enemy, whose real strength their leader knew too well. The doctors called Boylston a rash and unscrupulous quack; the press, led by Franklin, shrieked that death under his treatment was murder; the mob chased him with halters and bombs; the selectmen scolded him, and the Legislature brought in a bill to prohibit the obnoxious practice.[9]

Meantime Boylston proceeded to open the second scene. On June 27, 1721, with fasting and prayer we must suppose, certainly with grave misgivings, he inoculated his thirteen-year-old son, not himself. It is probable that he had had smallpox. His own son, then, was the first victim; after that two negroes, his servants. Truly one's sympathies must go out to those poor blacks. That first patient, the doctor's boy, with his filial faith, interests one little; but the terror of those eighteenth-century Africans one pictures as very real, and wonders that their mental state did not obscure the test. Such thoughts belong to the twentieth century; the records pass them by.

The method used by Boylston was much censured later. He secured his virus by pricking with a sharp quill toothpick the pustule of an infected person. The same instru-

[9] Hutchinson's History of Massachusetts, vol. ii.

ment was then used to inoculate the well. At first the actually sick were used for material; later pus was obtained from those already inoculated. How many other diseases were conveyed thus we have no means of knowing. The early patients soon recovered health.

That 27th of June, 1721, must be marked well by us. No earlier date in American medicine can truly equal it in importance and significance, and very few dates since. There is this coincidence, too, that some six weeks before, in April, the first inoculation in London was done for Lady Mary Wortley Montagu by Mr. Maitland, her surgeon. The thought was in the air. Such simultaneous advances are now frequently observed, and claims of precedence are not always edifying.

Now, time and proof alone could calm the raging of the doctors. For time, then, Boylston waited, while accumulating proof. Two other doctors—intrepid men, no doubt—joined him: Roby in Cambridge and Thompson in Roxbury performed their humble share. Family and friends offered their services to test the novel cure. One early volunteer was a Mr. Walter, minister in Roxbury, nephew of Mather. Boylston inoculated him, and truly he suffered for his pains. While at Mather's, convalescing from the operation, the gentleman received a night visit from the mob. They stormed the house, insulted the divines, and hurled a lighted bomb into the patient's room,—lighted and bearing with it scurrilous threats.[10] The fuse broke and caused no other harm. Thus did the clergy suffer in the cause of science.

Boylston himself was hated most of all. He could not go upon the street except by stealth, at night, to visit patients. Lynching was threatened by the angry mob.

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[10] "Cotton Mather I was once of your meeting, but the cursed lye you told of —— You know who, made me leave you, you Dog. And Damn you, I will enoculate you with this, with a pox to you."

They several times attacked his house and searched for him, but missed his hiding-place. They threw a bomb one night, but, as in Mather's case, it came to naught. Their threatening and violence lasted for months, subsiding only with the pestilence. Then the doctors tried a final stroke. They got Dal 'Honde to make a deposition showing the uselessness and danger of inoculation. He stated, first, that when in Cremona, in 1696, with the French army, soldiers were inoculated, with a very high mortality, describing in gruesome language the post-mortem findings. Second, that in 1701 an officer, a patient of his own, suffered from smallpox some years after a successful inoculation. Third, that after the battle of Almansa, in Spain, two soldiers were inoculated, and that after six weeks they " went dead" with dreadful swellings, as though poisoned. With this and other like persuasions the doctors approached the Legislature and succeeded in getting through the House of Representatives a bill prohibiting inoculation. It went no further. The Governor's Council held it up; it never became a law.

This deposition of Dal 'Honde is often quoted to show the dishonesty of the man, but I doubt whether he was worse than the others. The facts he states are probable enough, if we admit his premises. The improbability lies mostly in the dates as quoted. So that attempt fell through, and the Franklins subsided and retracted and the mob grew quiet and the law took no further course.

These are the results obtained by Boylston and Cotton Mather, aided by the faithful Roby and Thompson, in the first year of their work. There were two hundred and eighty-six persons inoculated, of whom six died, or one in forty-eight; and of those who died it was said that three had contracted smallpox before inoculation. Within the same period five thousand seven hundred and fifty-nine took the disease in the natural way, of whom eight hundred and forty died, or more than one in seven.

Whether or not these figures speak for themselves to the modern statistician may be a question. At any rate, even this good showing was bettered subsequently, it is asserted, by improved methods of operating and a regimen of mercury as a preliminary course. But it was a great victory, and the doctors admitted their defeat. They admitted it and they forgot it.

That naughty Douglass was the worst of all. He was a voluminous and trenchant writer, and subsequently attempted to show that he himself was the prophet of the true method.

For Boylston the glory was great, and in the eyes of his amazed neighbors the reward beyond all dreams. The inoculation controversy was still raging in London, with little settlement as yet compared to what America had seen. So to London went our good Boylston, on the invitation of Sir Hans Sloan, physician to George I., to tell his story and demonstrate his method. There at first the storm burst upon him again, roused by one Wagstaffe and other such; but he knew his ground and went on to certain triumph. Four events marked the visit for him, though of small concern to us now: he kissed the hands of a sympathizing Royalty, he published an extensive and successful defence of his case, he was made a member of the Royal Society,—the first native of America to be so honored,—and he was given a thousand guineas by the King.

Then he returned to Brookline, a modest man still, content with home and old enemies turned friends. It would be pleasant to follow his career further through those remaining years; but, though materials are not wanting, there is, in truth, little to say. Thacher tells us, in one place, that he returned rich and retired from practice; and in the next sentence that he continued for many years active and honored in his professional work until old age, when he retired to his Brookline farm, to the raising of

stock and the breaking of young cattle,—all of which is blameless and concerns us not at all. After all, his real work was done early, and it was a good work. A forceful, courageous man he was, the first American physician of note, and an honor to his profession.

CHAPTER III.

THE EIGHTEENTH CENTURY. COLONIAL MEDICINE (CONTINUED).

Medical writing in the America of the eighteenth century reached no great height, as we may well believe. Life was too strenuous and the audience too small and inaccessible for much of that work. Yet men were beginning to see that the interchange of ideas was necessary for progress, and here and there light began dimly to appear.

In spite of our provincialism and dependence on the learning of Europe, we had done something in the development of inoculation. Feeble voices were raised at first to tell that science was not altogether dead; then to set forth the ancient learning and to show in what manner and measure it might be turned to the new conditions. Mostly those early American writings were brief dissertations, dealing with homely matters; the expression of some small personal trial and experience; sometimes descriptive of the new flora of the wilderness, sometimes telling of epidemics; occasionally teaching; rarely preaching; addressing the laity betimes as well as the doctors.

Those discourses, with few exceptions, are of little interest to the modern reader. As curios they may amuse the antiquary, and as pointing to the centres of culture they may occupy the student of history; but, after all, they impressed their times but little, and Ramsay, who talked and wrote in the next generation, has briefly passed them by.

But the men who did the work attract us and tell their story in their busy lives. Nearly sixty such writers appeared before the Revolution; their essays cover near a

hundred themes.[1] Those whose work has reached us were educated men; natives of the British Isles, many of them; some few born in America.

It is instructive to see how, even in those days, the American spirit and atmosphere attracted the foreigners, who, almost without exception, promptly became stanch enthusiasts for the new country.

Of these strangers who came to live among us the most notable, as a writer, administrator, and Nestor at the last, was Cadwallader Colden. This distinguished man was born in Scotland, at Dunse, in 1688,—very long ago historically: the year of the English Revolution of William and Mary,—and lived through the greater part of the eighteenth century. Surviving the Declaration of Independence in his adopted country, he died on September 28, 1776. Throughout his long and useful life he was constantly prominent in the midst of men and affairs; more so than any scientist among us, if we except his friend Franklin. He was a public man, and the tale of his life involves us with questions of the first importance.

In 1705, at the age of seventeen, Colden was graduated in arts from the University of Edinburgh; then he studied medicine, and received the M.D. when twenty years old.

The New World had always strongly attracted him, especially those parts recently acquired by William Penn. The act of union between England and Scotland had gone into effect in 1707, with a resulting considerable exodus from the latter country for several subsequent years. Colden felt the impulse with many others. Well connected and educated, vigorous and ambitious in an unusual degree, he looked for a life of greater activity and promise than could be found at home, and in 1710 emigrated to the new city of Philadelphia.

This was the year of the founding of the famous South

[1] F. R. Packard, p. 429 *et seq.*

Sea Company—the greatest bubble in history—and the last year of Marlborough's wars. Europe was seething with various activities and enterprises. Never had the instinct for travel and migration been stronger; so Colden found himself but one of many in his journey to the New World.

That eighteenth-century expansion was a very different thing from the adventurous voyaging of a hundred years before. In the seventeenth century men had gone to fight and wander, seeking gold and other booty; Colden and his like were of another kidney, and seriously started forth as colonists to settle and upbuild.

So Colden settled in Philadelphia and began the practice of his profession; zealous, we are told, full of enthusiasm, very different in temper from that fellow-countryman of his, William Douglass, who a few years later went scoffing by to Boston. Colden was still young and not poor. He soon felt the need of greater experience and a knowledge of London ways. With the determination to make good his lack, he continued on for five years, practising, studying, and writing; then to London.

The one note of interest in that visit was the publication of his first medical paper, written in Philadelphia. He fell in with the distinguished Edmund Halley, whose protégé he became in some sort; and to Halley he confided a paper on Animal Secretion which that eminent man read before the Royal Society.

Then came courtship and marriage. The lady was a Miss Christie, of good Scotch family. In 1716 the young people returned to America, and two years later took up a residence permanently in New York City.

It is an interesting fact that, though a physician, and in his day distinguished as a scientist, Colden became known to history rather as a statesman and public-spirited citizen.

Just how long he practised medicine after going to

New York in 1718 is somewhat uncertain, but it could not have been long; he soon left that pursuit to turn to the study of science and politics.

His public career need not concern us. It was long and varied. He held many offices and served many years. Though known and referred to by contemporaries as "Governor Colden," he was actually Lieutenant-Governor only, after having been Surveyor-General of the province, Master in Chancery, and a member of the Governor's Council. To that last office of Lieutenant-Governor he was appointed by the Crown in 1761, fifteen years before his death, and during his incumbency the functions of Governor repeatedly fell to him owing to the deaths or absences of several governors.

In the opening year of the Revolution, after the return of Governor Tryon, when he had himself reached his eighty-eighth year, he withdrew from active political life and retired to an estate on Long Island, where he died on September 28, 1776.

This brief sketch shows us, in some measure, what manner of man he was in his public activities. Probably, with the exception of Rush, no American physician has ever taken so vigorous, honorable, and influential a part in the political life of his community, and certainly few among us have ever acquired a more substantial appreciation from the public.

Colden's life previous to his assuming the lieutenant-governorship was devoted largely to the study of science and the conditions of the new country in which his lot was cast. Incidentally and supplementary to this he frequently held public office. No one of his works has proved of conspicuous or permanent value—few works of men are that; but the presence in the young country of a man highly cultivated, candid, well acquainted, eager and thorough in science was a stimulus and an example which bore fruit long after he himself had ceased from his labors.

In 1720 Colden had abandoned the practice of his profession, being appointed Surveyor-General of the province of New York; and in that year he published his first brief paper in this country: an "Account of the Climate and Diseases of New York." It is very interesting. As Beck observes, perhaps his most notable remark is that in regard to consumption:

"The air of the country being almost always clear, and its spring strong, we have few consumptives, or diseases of the lungs. People inclined to be consumptive in England are often perfectly cured by our fine air, but if there be ulcers formed, they die in a little time. . . . The climate grows every day better as the country is cleared of the woods: and more healthy, as all the people that have long lived here testify. . . . I therefore doubt not but it will in time become one of the most agreeable and healthy climates on the face of the earth. As it is at present, I prefer it to the climate of England, and I believe most people that have lived any considerable time here, and returned to England, will confirm this."

This immunity from consumption enjoyed by New York was of very brief duration, for the editors of the *Medical Register,* two generations later, exclaim at the changed conditions even in their time.

The paper on climate is made to serve by the editors of the *Register* as a sort of introduction to a much more famous and valuable paper by Colden on "The Fever which prevailed in the City of New York in 1741-2." This careful publication dealt largely with public hygiene. The wise of our day would call it *timely.* It is an elaborate review of soil, water, drainage, and fresh air, and came to the community at the right time. The authorities of the day appreciated its suggestions, and proceeded to establish a plan of public drainage which in time proved of the greatest value.

Then there is that paper of his "On the Virtues of the

Great Water Dock,"—a striking title, and one wonders why it recurs continually in memoirs coupled with Colden's name. One fain would ask, What are those wondrous virtues? It was the paper, not the poor *Rumex aquaticus,* that we must marvel at; and because it had the good fortune to introduce the young American to Linnæus, and so to open a long and pleasant correspondence. Sixty years ago Professor Asa Gray collected the correspondence of these two men and other Colden letters,—a very human production.

Somewhere about the year 1730 Colden acquired an estate near Newburg on the Hudson, and named it Coldenham. There he lived mostly for many years, and the place became famous in that century as a home of science and letters and a centre of kindly hospitality. Coldenham and coldenia in some fashion perpetuate the man's name; the latter a plant of the tetrandrous class, first described by Colden's daughter, and so named in her honor by her father's friend Linnæus.

Another paper by Colden was a letter to Dr. Fothergill, of London, giving an account of the *throat distemper* which had prevailed in New Hampshire in 1735 and spread later through New England, New York, and finally throughout the colonies. This had been described by the nimble-minded Douglass years before, and was undoubtedly that malignant disease which came later to be known as *diphtheria.*

In 1741 Mr. Collinson, of London, wrote to Colden, "I also sent Mr. Grayham your *History of the Five Indian Nations:* he was mightily pleased with it and hoped you would oblige the world with the second part." Indeed, that History became the best known and most popular of Colden's writings, and Mr. Grayham echoed but feebly the opinion of American readers.

There were many other papers on medical subjects, all brief, discriminating, and valuable in their time; but

most of his writing was on botany at first and later on physics.

With Benjamin Franklin he corresponded constantly. They were intimates, with similar tastes, and discussed electricity, gravitation, philosophy, and a wide range of scientific subjects. *Stereotyping* as subsequently introduced in Paris was an invention of Colden, and was appropriated and exploited without recognition by an ingenious Frenchman in Napoleon's time. It was Colden, too, who first suggested to Franklin an American Philosophical Society, and he was one of the original members.

Indeed, his activities were constant and multifold. As Packard notes, one among the efforts of his young professional life in Philadelphia was to have established a course of "public physical lectures," and to bring about that the bodies of the dead should be inspected by a properly accredited physician. The authorities failed to approve these plans, but the plans must be remembered as evidence that nearly two hundred years ago the subject of medical study and instruction was already in mind.

No American physician of the colonial time has left more copious literary remains. In addition to the works already mentioned, a writer gives a long list (in the *Medical and Philosophical Register*), including medical essays and observations, historical papers, dissertations on the subjects of botany, electricity, and general literature, and a great mass of correspondence with foreign savants and with such Americans as Franklin, Garden, Douglass, Bartram, Whytte, Bard, and Alexander. Indeed, the correspondence is very full and complete from the year 1710 to 1776, and has proved of extreme value to the student of those times.

His biographers and admirers are abundantly laudatory of the man and his works. Doubtless he was a remarkable person in his day and generation, to be classed next to Franklin in many things; and had it not been for the

stormy days of the Revolution which obscured his closing years, and the rising of many truly great figures on the national stage, Colden, the statesman and man of science, would have come down even to our own days a very real and commanding personality.

Boylston, Douglass, and Colden were the three conspicuous physicians of their generation, but in many parts of the country others of some note were beginning to appear, and of them we must say a word before turning to the brilliant company of young men who rose up in Philadelphia and New York during the later colonial days.

Many of the notable men of the first half of that century were British born, although there were some exceptions, and of these last the most conspicuous was Thomas Cadwallader, of Philadelphia. Here was a case in which a man's true claims on posterity are not entirely obvious. Some communities more than others hold a halo behind the heads of their great men, and so, at times, modest merit finds more than modest recognition.

Now, Cadwallader was one of a well-known family and the son of a prominent physician. He was by no means lacking in ability. For his place and generation he was unusually well educated, finishing his studies under competent men in London, the most notable of whom was Cheselden.

Perhaps the fame of Cadwallader rests mainly on his broad humanity, which, with a background of sound common sense, unusual ability and learning, and constant industry, made him the most conspicuously successful practitioner of his time. Indeed, he represented the very best in what we have come to call the "old-fashioned family doctor," a type too rarely seen among us in these latter days.

And he was by no means without originality. On his return from London, a young man, he established, by request, a class in practical dissections, demonstrating

anatomy as well as performing autopsies for his less well-informed colleagues. This service was abundantly praised and appreciated by the men of his time.

Some medical writing he did also. The best known of his productions, "An Essay on the Iliac Passion," became a classic, and was for years quoted by Rush and other teachers as a sound and luminous exposition. That title has an unfamiliar sound in modern ears, but one learns that the complaint was common in former days, being that condition now called *ileus*. A perusal of the article suggests, however, the probability that many of the cases would now fall under the head of appendicitis. This was one of the earliest of American medical publications.

With the other intelligent physicians of his time, Cadwallader appreciated the value of a sound medical education, and was active among those who forwarded the establishment of a medical school.

Here is an anecdote of him; rather pleasant, though it reflects on the wisdom and justice of colonial courts. Good Dr. Thacher rolls it under his tongue as a morsel to be cherished.

There lived in Cadwallader's neighborhood a "provincial officer" of some sort, who became the victim, evidently, as we get the tale, of a mental disorder with suicidal and homicidal tendencies. His delusion led him to the conviction that he could go out of the world only through public execution as a murderer. Accordingly he sallied forth one morning, *fusil* in hand, with intent to kill. The first person he met was a pretty girl, but her face saved her. Then came along Dr. Cadwallader, kindly and affable, with his "Good-morning, sir; what sport?" and the courtesy saved him. As the man said later, he was so struck with the pleasing manner and address that he had no heart to kill him. But the sportsman went on. Soon he came to a tavern, where he turned in, encountered a Mr. Scull, and shot him dead. The tale is not

without its humor, and leaves one to conclude that poor Mr. Scull was neither beautiful nor pleasing. At any rate, there is our lesson, as the historian says; and the poor demented officer was promptly apprehended, tried, and hung in sight of the tavern where he had murdered the unattractive Mr. Scull.

When all is said, then, Cadwallader's claims on us rest mainly upon those qualities of heart and head of which we know, and he must be remembered, we are told, as a shining example of the best practice of his time.

It has been asserted and frequently repeated by writers that there was a time in the first three-quarters of the eighteenth century when science was more popular and more successfully cultivated in the South than in the Middle colonies and New England. This is interesting, if true, and rests on the assertion of David Ramsay, himself a South Carolinian; but later studies lead one to suspect that Ramsay's acquaintance with early American medical writings was not as extensive as he might have made it. However that may be, the South did produce a goodly number of able scientific writers and practitioners in the pre-Revolutionary days; and of all the Southern towns conspicuous for medical talent, Charleston stood first.

Ramsay, in his well-known article, which is copied verbatim by all of our medical historians of those times, states that "In that early period of American Medical History, which was before Dr. Rush began his brilliant career as an author, there were more experiments made, more observations recorded, and more medical writings ushered into public view by the physicians of Charleston than of any other part of the American continent."

Those decades in the middle of the eighteenth century were very cheerful and prosperous times in South Carolina. It was one of the newest colonies, being but thirty-eight years old when Colden came to settle in New York

in 1718, and when Douglass and Mather began their sparring in the Massachusetts Bay Colony. Turmoil marked the first half-century of the life of the Carolinas: Indian fights, contests with the proprietors and governors, and alarms because of Spanish invasions,—conditions not very favorable to the success of studious scientific pursuits. Almost from the first, however, the institution of slavery had favored a feudal condition of affairs and had served to evolve and nourish a large class of landed proprietors, who gradually came to accumulate wealth of a certain sort and to develop a distinct hereditary gentry class. That was before the era of King Cotton. The planters had discovered a staple in the cultivation of indigo, which, with rice, became the great product of the colony and in time the source of wealth. Property increased rapidly in value, especially after the conclusion of peace with the Indians, and the great planters began to rival in luxury and comfort the sugar growers of the West Indies.

So it came about towards the middle of the century that Charleston, the port of the region and the centre of its wealth, society, and commercial life, began to be heard of in foreign parts and to attract ambitious young professional men from the old country. The youth of the land, too, began to look to Europe for education and travel: elder sons to an experience of the life of courts, the daughters of the land to the perfecting of their accomplishments, and ambitious younger sons to University studies and the learned professions.

The strides made by the youthful colony were surprising indeed; so we must not wonder at the fact that, among other precocities, Charleston became in some degree famous as a centre of learning and of culture.

While the Eastern and Middle colonies were producing their numerous practitioners and a few men better known to us, South Carolina was honored by the lives of a group of five men who deserve especial notice: Chalmers, Lining,

Garden, Moultrie, and Bull. Not that their contributions to science were of great permanent value, but because they were men of sound understanding and unusual cultivation, who led long and arduous lives in our midst, who taught from the very first, by precept and example, the value of exact observation and research, and, more than others, seem to have appreciated that progress is attained not only by the brilliant discoveries of the few but by the obscure toil of the many.

Though the five were very distinct individuals, one cannot but think of them as a group, always classed together and forming a complex, like their successors of other places and eras, as we shall see. Bull was an American; the other four were Scotchmen, as their names imply. Indeed, the Scotch blood of much of South Carolina was its boast then as it has not ceased to be in later times.

Perhaps, of all the group, William Bull is the least conspicuous; but we remember this of him, that he was "the first white person born in South Carolina,"[2] and was the first native Carolinian to receive the doctor's degree. He was a pupil of Boerhaave, and was graduated from the University of Leyden in 1734. We hear his European friend and contemporary, Van Swieten, speaking of him as "the learned Dr. Bull." Later he returned to Charleston and took up the practice of his profession.

Like Colden, of New York, he was interested in many things. His father was at one time Lieutenant-Governor of the colony, and he himself was drawn to public affairs; so he gradually abandoned his practice, as did Colden. We find him drifting more and more into politics, being

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[2] Thacher. This is remarkable, if true. The Carolinas were settled in 1680; Bull was born in 1709; the colony was divided into North and South Carolina in 1719.

a member of the Governor's Council, Speaker of the House of Representatives, and in 1764 Lieutenant-Governor. This office he held for many years.

Like so many of the older generation, he was a Tory. He could not continue in his native State after the Revolution, but sailed in 1782 with the evacuating British garrison, and passed his remaining years in London, where he died in 1791. So much for that ancient American-born Bull; vigorous, scholarly, potent for many years, but futile at the last.

The four Scotchmen—Chalmers, Garden, Lining, and Moultrie—who came to South Carolina in the first half of the eighteenth century were certainly of a type which would have been unusual even in Philadelphia and New York. The detail of their lives is profitless here, but some few words may be said to fix the men in the reader's memory.

John Lining was the eldest (1708-1760). He was perhaps the earliest American physiologist. His fame in this branch rested on an elaborate series of experiments in metabolism, the results of which were published in the "Transactions of the Royal Society" for 1743. For a year he had made careful records of his daily weight, of food eaten, and of his excretions; all this while occupied with a busy and exacting practice. The results obtained from his carefully compiled tables were long a standard for students. Ten years later he published an interesting and exhaustive "Description of American Yellow Fever," the first American account of that disease.

Almost as much as the smallpox of the seventeenth century, yellow fever was the scourge and terror of the eighteenth. As we well know, it was endemic in the West Indies, and from there frequent epidemics swept through the seaports of North America. From Boston to Savannah every physician was alert to recognize it, and its study was the frequent occupation of many gen-

erations. Lining it was who most persistently advertised the theory of immunity after attack, and to him more than to any other one man the general recognition of that fact became due. His descriptions are graphic for us to-day. These Scotchmen, with their knowledge of the world, wider than that of most native Americans of the day, were in a better position for study and correspondence than their American colleagues, so that we are wont to find them in closer touch with the advances of the science of the time. Lining not only practised in his little community, but preached to a larger audience, and we find him writing to well-known men in London, as well as to Franklin, Colden, and other such at home. The records call him a distinguished American philosopher, and doubtless he deserves the description; at least it is well to place him as such in the little Charleston group.

John Moultrie was the second of these well-known Scotchmen; to be distinguished always from his son John, with whom he is confused by Bard in his excellent monograph. The younger Moultrie was a doctor also and a politician, but less famous than his father. The elder Moultrie deserves no notice as a writer or student. His fame is rather of the type of old Deacon Fuller and the Philadelphia Cadwallader. He had a rare genius for practice, and was adored by the laity, especially by the women. All the writers praise him, and follow Ramsay in telling this of him, that "his death was regarded as a great public calamity. Several of the ladies of Charleston bedewed his grave with tears and went into mourning on the occasion."

He must indeed have been a remarkable old man, for although he died two years before Bunker Hill, after forty years of phenomenal success, he was recalled with regret and affection until well into the next century. He seems to have been a jovial soul; for patients in peril would send for him, even on the festive evening of St. Andrew's

Day, preferring his services to those of any other professional man, though sober. So great was his practice in cases of childbirth, and so dependent upon him had the women of Charleston become, that after his death many of them despaired of their lives as their time approached, and the mortality from this cause was uncommonly great during the succeeding year. But the man died and the world went on, somewhat poorer and sadder, indeed, mindful of those tears which had been shed.

Of far more concern to us, however, than the excellent Lining or the jovial and lamented Moultrie were those other two Scotchmen, Chalmers and Garden.

Lionel Chalmers was born in Scotland in 1715, and after being graduated at Edinburgh, came to Charleston about 1745. A friend and contemporary of Cullen and William Hunter, he began life with the same impulses and ambitions as those distinguished men, and carried his energies with him across the sea. Fortunately for his fame, though unfortunately, perhaps, for his pocket, Chalmers was also a contemporary and fellow-townsman of the popular Moultrie. No competition in practice could succeed against such a man; so that Chalmers, although successful to the extent of making a decent living, found abundant time for original research and for writing. His writing was good; his English terse and vigorous; his descriptions clean-cut and lucid. Few compositions of that day are pleasanter reading than his "Account of the Weather and Diseases of South Carolina," published in 1776. And he is convincing, too. In this he differs widely from that other fellow-countryman of his, William Douglass, in his famous "Summary, Historical and Political." That book of Douglass is ingenious and most amusing, but so full of exaggeration and malice as constantly to refute itself, leaving one to wish that the author, like Dean Swift, might have recognized fiction as his proper forte. Douglass did not lack humor, though,

which makes him bearable; while Chalmers took himself as seriously as any other Scotchman. But for all that, he is interesting, and his description of Charleston, written one hundred and thirty years ago, is well worth reading.

There were about five thousand white folk there, he tells us, with a death-rate of about twenty-seven to the thousand. The negroes were more numerous than the whites and quite as susceptible as the former to all sorts of diseases, excepting yellow fever and gout. In both races the birth-rate exceeded the death-rate in those days.

Then he goes on to describe the white natives of the region:

"The natives, for the most part, rise above the middling stature and they attain their full height sooner than the people usually do in colder climates. In general they are of a slender make with a pale complexion. They are forward in genius and thought, capable of receiving instruction earlier than children in Britain commonly are. With respect to their character, they are hospitable, and of a mild temper, which is yet not without a quick sensibility of any designed affront; but their passions soon subside. Few live sixty years, and the hoary appearances of old age often show themselves at the age of thirty years. . . . The women are in full bloom between their sixteenth and twenty-fifth years, and they very generally are well featured and genteel in person."

The tale goes on with a pleasant account of the climate of the country, describing vividly the commonly prevailing fogs, hurricanes, thunder-storms, and other phenomena, the character of which must have changed greatly since that time. As to diseases, gout and its accompaniments seemed to him the most striking; so that, reading his pages, one may almost fancy whole populations limping feebly from the cradle to the grave. The subject of the treatment of various disorders occupies much space. The

writer never halts, and the book may be opened anywhere to some striking and thoughtful description.

Besides this work, which must have occupied years of study and careful arrangement, Chalmers had already made himself widely known as an author. As early as 1754 he had published an article on "Opisthotonos and Tetanus" in the *Medical Observations and Inquiries of London,* and in 1768 he published "An Essay on Fevers." This essay interests the student of ancient theories because it shows the influence of Hoffmann's teaching and anticipates the ideas of Cullen. To Hoffmann was due the overthrow of the old humoral pathology of Galen and recognition of the fact that the seats of disease did not lie necessarily in the blood but in the various organs; hence the term "Solidism," later elaborated by William Cullen. To that vigorous Scotchman was due the teaching of what Ramsay calls "the modern spasmodic theory of fevers."

This same conception of pathology which made Cullen famous throughout Europe was anticipated by his friend Chalmers, who believed the immediate cause of fever to be a "spasmodic contraction of the arteries and other muscular membranes." Whatever might give pain or stimulate the nerves so as to cause them to excite such constrictions, he taught, might bring on fever.

The essay is an extremely ingenious one, and the arguments are supported by a mass of learning and quotation. Doubtless, if the author had been more advantageously placed for teaching and expounding he would have obtained a fame equal to that of Cullen, whose writing is so closely in accord with his own. On these publications, mainly, Chalmers's fame rested. A careful, studious man and a busy writer, he became known to the profession rather than to the laity, and lived out his life in Charleston, where he died in 1777. He never returned to Europe or was enabled to reap the rewards which the

report of his work and writings might well have brought him in an older and broader community.

The last and most famous of the Charleston group was Alexander Garden, a name not altogether unknown to the casual reader of our own time. He was the youngest of the four, born in 1730, and one recalls that he carried with him through life a tuberculous taint, against which he fought for many years. He died of a consumption in 1792. But Garden did much more than travel for his health. He was born in Scotland, as we know, was graduated from the University of Aberdeen, and went to South Carolina about 1750. More than other Americans of his time, with the possible exception of Colden, he was a highly gifted, widely read, and cultivated man. He was familiar with the Greek and Latin classics, and, what was more rare in those days, with French and Italian; while his studies embraced medical science, botany, mathematics, philosophy, belles-lettres, and history. Altogether he seems to have been a most accomplished and agreeable person. His biographer notes complacently that he was a particular favorite in "refined female society," and adds the corollary that he was most successful in his practice. But there must have been more than mere accomplishments to commend Garden to the world of science, and that he was held in high regard appears from the fact that he was made a Fellow of the Royal Society of London, while still residing in Charleston, in 1772. Fourteen colonial Americans received this honor, of whom four were physicians: Boylston, Mitchell, Garden, and Morgan. Garden was a painstaking and enthusiastic botanist, and, as such, corresponded extensively with many European naturalists. Linnæus, who regarded him highly, gave the name *Gardenia,* in his honor, to one of the most beautiful of flowering shrubs. Indeed, on subjects of natural history Garden was a frequent writer, and the "Transactions of the Royal Society" contain many of his productions.

Garden made one addition to our Pharmacopœia for which Lining and Chalmers have often received equal credit,—that very useful vermifuge, spigelia, or pinkroot. As a matter of fact, it was Garden who discovered its properties and exploited it, and his one elaborate medical paper which we have deals with this subject.

In spite of ambition and capacity, the early years of Garden's practice were so seriously interrupted by ill health that in 1754, four years after coming to South Carolina, he was obliged to take a voyage for his recovery. While on his travels, he stopped for some time in New York, where he was offered a professorship in the new college, but declined, and shortly afterwards returned to settle in Charleston. There, for nearly thirty years, he continued his labors. In 1783 he returned to Europe. He was a Tory, and, like his contemporary, Bull, found life in America impossible after the Revolution, although he had a son who served in the American army. Arrived in London, Garden was warmly received by his many admirers there, and was elected a Councillor and Vice-President of the Royal Society. He was also made a member of the Royal Society of Upsala. From that time his story consisted mostly of rest, social triumphs, and travel in the pursuit of health. In his native land his tuberculosis again became active, and after nine years of such existence he died in London in 1792.

Such were some of the doctors who lived in South Carolina during the eighteenth century; these five the most important, it would appear. They were not epoch-makers; we cannot well remember them among the masters in medicine; but for the time, and for the little provincial town in which they lived, they were men of unusual strength, and merit a place in our annals. There were others, — many others, indeed, — Walter and Catesby among them, but not of equal fame.

In Virginia some few are also to be found, at one of

whom we must briefly glance. John Mitchell, of Virginia, was one of the few eminent American scientists of colonial days, a member of the Royal Society, and an Englishman by birth. He came out to Virginia in the early part of the century, not far from the year 1700, settled in the little town of Urbanna, on the Rappahannock, and remained a country doctor all his life.

In these days it is hard for us to conceive how a man situated as was Mitchell, living in a remote, thinly settled agricultural community, many miles from the nearest considerable city, Philadelphia, and months in time of travel from the Old-World centres of learning, could possibly have risen to such distinction as became his. Indeed, we are fain to agree with Rush, that he may have been a man of remarkable genius. Yet we know little of the man, and the report of him rests mainly on two essays which he wrote, one published only after he had been many years in his grave. Like Garden and Colden, both of whom he came later to know and esteem, Mitchell was attracted especially to botany, and in his old age he published a work on that science and described several new genera of plants. His earlier work, which one may find in the "Philosophical Transactions" for 1743, was "An Essay on the Causes of the Different Colors of People in Different Climates." It is pleasant reading still. His idea was that the color in whites is due to a thin epidermis transmitting the underlying tissue color; that negroes' skins are black because thick and dense; that they have no black humors in their skins. So texture, not coloring matter, is made to explain the conundrum; and we are told that, according to the Scriptures, the primitive color was a medium between white and black; from this primitive color the white and black races have degenerated, both in opposite directions. There are various other essays by Mitchell, published in the "Philosophical Transactions," but the work for which he became best

known was that posthumous one alluded to above. It was "An Account of the Yellow Fever which prevailed in Virginia in the years 1737–'41–'42."[3] Some years after Mitchell's death the manuscript of this paper fell into the hands of Franklin and was passed on to Rush, through whom eventually it was published.

On these two articles and the goodly number of essays already mentioned Mitchell rested. Of his personality and manner of life we know little more; but his fame travelled abroad, and, with those others whom we know, he was honored by his English contemporaries.

Now, these men, selected as leading scientific Americans of the early eighteenth century, are few in number, to be sure, but in a certain fashion their works do follow them, and they have served to demonstrate the best sort of lives being lived in those times.

The next generation indeed advanced. The seed sown by an earlier generation soon came to fruitage. American science shifted gradually into the hands of American-born men, and, beginning with the company which declared for the patriot side in the Revolution, we find a true native spirit of learning, growing wider and wiser through the nineteenth century.

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[3] The editors of the Medical and Philosophical Register (New York), vol. iv. p. 181 (1814), published the paper with this footnote:

"A series of highly interesting papers on the Yellow Fever, which many years ago prevailed in Virginia, embracing the account written in 1744, by the late Dr. Mitchell of that State, with a reply of Dr. Colden to Dr. Mitchell and a subsequent letter of Dr. Mitchell on the same subject, was placed in the hands of Dr. Hosack (editor) by the late Prof. Rush of Philadelphia, a short time previous to his death. On the character of Dr. Mitchell it is unnecessary particularly to remark. He was a distinguished Fellow of the Royal Society of London and eminent as a physician and philosopher. With Chalmers and Lining of South Carolina and Alexander and Colden of New York, he has done much for the advancement of medicine on this side of the Atlantic."

CHAPTER IV.

THE EIGHTEENTH CENTURY. COLONIAL MEDICINE (CONTINUED).

We may say truthfully that, up to the middle of the eighteenth century, Boylston was the only American physician who deserves a permanent place among the masters. We saw other learned men, other men of more than national reputation; some of them thought very wise thoughts, some of them put their ideas into writing more or less luminous, and some added their mite to our Pharmacopœia; but, with the exception of Boylston, their striving was on lines already marked out in some fashion. They collated and expounded ideas already in vogue, they made no brilliant discoveries, they formulated no salient theories, they founded no school, they fostered without materially advancing our art.

Now, with the turn of the century we come to a generation of men to whom these words no longer apply. Perhaps they were no more able than their predecessors, but we observe this: that most of them were American born, that they were full of a restless energy and enthusiasm strange to their professional forbears, that they were filled with the spirit of the times, and were patriots in the Revolution when their surviving elders clung to the Tory side; and that to them belongs the founding of schools and hospitals, those twin advocates and exponents of the advance of medical science.

To most laymen a hospital seems a very obvious thing, a place where one may go to be taken care of in case of illness or accident; but to physicians from the very earliest days it has meant much more than that. To them it is as much an educational institution as a refuge for the afflicted, and never so much so as in our own day. In a

hospital groups of cases most properly may be studied, methods of treatment may be inaugurated and tested, and constant observation may be employed. There the sick-bed, the laboratory, the morgue, and the operating-room are always ready and fully equipped. There the students come for their instruction and young doctors for the perfecting of their early training; there physicians gather from far and near to hear and to see the latest progress; and there, most important of all, the visiting staff find opportunities for their best work, and in a congenial atmosphere of science, unhampered but with the stimulus of friendly competition and with the necessity of teaching, advance their art under advantages such as are known to no other branch of human endeavor.

These great and important functions of a hospital, so imperfectly understood even in our own day, were unknown to laymen one hundred and fifty years ago; but the necessity for a better care of the sick poor was becoming apparent to the authorities of the larger towns, and the stimulus necessary for their action was happily furnished first in Philadelphia, through the energy of Dr. Thomas Bond, ably and effectively seconded by Benjamin Franklin, without whose influence and shrewd knowledge of men the enterprise might have languished many years longer, as was the case in the cities of New York and Boston.

To Philadelphia our country is indebted for numberless signal advances in the development of the arts and uses of peace, and the medical profession must never forget that there was established the first great American hospital, and that there in due time was founded the first of our great medical schools.

In Thomas Bond there is an apparent exception to our understanding that the inception of schools and hospitals belongs to a generation later than that of those men already described. Indeed, he was a contemporary of

Cadwallader and the Charleston group; but he was one of those men whose energy does not cease with their youth; and although, while in young middle age, he founded the Pennsylvania Hospital, he continued active and progressive for more than thirty years longer; so that we think of him as a contemporary of his distinguished juniors, Morgan and Shippen, and as sharing in their labors.

Bond was a Marylander, and was born in the year 1712. His circumstances were comfortable, and he was enabled to secure an excellent medical education. Like so many of his colleagues in that day, he was not graduated in arts, but early began his medical studies in the office of a local practitioner, a Dr. Hamilton; and having passed some six years under such tutelage, went to Europe for broader learning.

Such foreign study, as we know, was no new thing for young colonials. As early as 1642 Samuel Bellingham, of Harvard, had gone to Leyden for the doctor's degree; in 1650 John Glover and Leonard Hoar (later Harvard Præses) had gone to Aberdeen and Cambridge for the same purpose; and there were several others, including Davis, of Harvard (1674), and Bull, of Charleston (1734). But Bond was the first to return filled with the practical idea of introducing the hospital system into his native land; and after seventeen years, in 1751, light began to shine upon his enterprise. Bond came home in 1734 and settled in Philadelphia.

During those middle years of the century Pennsylvania's history is singularly uneventful. Except for political disputes with the proprietaries and governors, the people of the colony went their ways peacefully enough, and such domestic conditions doubtless existed as S. Weir Mitchell has described in the early chapters of his charming tale, "Hugh Wynne."

More than in other colonies, then, the situation favored

studious pursuits; and so for many years Thomas Bond and his younger brother Phineas, who joined him, progressed as practitioners, students, and writers. Like most of the writings of those days, the publications were descriptive and ephemeral; but the elder's eyes were constantly open to the possibility of medical improvement, and finally, in 1751, he launched seriously his propaganda for the establishment of a great municipal hospital.

It must not be supposed that nothing in the nature of provision for the afflicted had ever been established before in the colonies. From the commercial character of the country, as Beck puts it, it may readily be supposed that our first medical establishments were lazarettos, or hospitals intended for the reception of seamen and others infected with contagious disorders. Such institutions existed on the Delaware River and in Boston Harbor, and numerous small private institutions were established in different parts of the country to facilitate the practice of inoculation for smallpox, as that treatment came generally to prevail. But these were not hospitals in the all-embracing sense. They were small, very limited in their means and scope, and in the lazarettos especially the medical attendance was of the most meagre sort and the care of patients inefficient and often abominable.

Now, such scant accommodations as these had long ceased to meet the growing needs of the land; but our colonial ancestors were in many ways a conservative people; their very Revolution was but a standing up against innovation and a harking back to their ancient rights. It was not easy to persuade to a change quiet steady-going communities like old New York, Boston, or Philadelphia; so that when Bond broached his scheme for a public hospital in the last town, his friends had slight encouragement for him. There was little prospect of his project going through, he was told; but as a first step he must consult Franklin.

This was just the sort of thing to appeal to that vigorous philosopher. He saw at once the value of the proposal and undertook to put it before the community.

In his autobiography Franklin tells us the tale with characteristic humor. He recognized the futility of asking for subscriptions for so novel a project before a popular demand had been created, so he proceeded to create the demand. As he says, "Previous, however, to the solicitation I endeavored to prepare the minds of the people by writing in the newspapers on the subject, which was my usual custom in such cases, but which Dr. Bond had omitted."

For a time all went pleasantly and the money rolled up; but long before the desired amount was reached, enthusiasm slackened, and it became evident that something more must be done. With that Franklin volunteered to apply to the Assembly.

Now, where money was concerned, this Provincial Assembly of Pennsylvania was the most stiff-necked body of men in all the colonies, as poor dull Braddock and others found four years later; but in the present case Franklin worked upon the members with his usual astuteness. The opposition came, as was expected, from the country members, who could see no advantage in voting public moneys for the benefit of their city brethren, and said further that they doubted even if the citizens wanted the hospital. The last excuse gave Franklin his chance, and on that he based the phrasing of his petition. He proposed that when the contributors to the hospital fund should have raised their sum total to two thousand pounds, and made *the same appear to the satisfaction of the Speaker of the Assembly for the time being,* that then it should be lawful for the Speaker to sign an order on the provincial treasurer for another two thousand.

Franklin remarks that this proposition was popular at once, and in its workings cut both ways. Contributions

from the people flowed in when it was explained to them that what they gave should be doubled; while the obstinate country members, confiding in the reluctance of the citizens, promptly voted for the bill, thinking cheaply to gain the credit for ready charity.

As Franklin tersely remarks, "The subscriptions accordingly soon exceeded the requisite sum, and we claimed and received the public gift, which enabled us to carry the design into execution."

The tale of the building and equipping of that first hospital has so often been told that it needs no repeating here.[1]

A house was rented on the south side of Market Street (then High), below Seventh, and was ready for patients in February, 1752. The rules provided for the reception of acute cases only, excepting the contagious, and that the city poor only should be received without charge. A number of regulations were adopted, providing for the reception and care of persons from without the city. The eighth rule reads "That at least one bed shall be provided for accidents that require immediate relief."

It was further announced that paying patients would be received in the beds left over after all charity cases had been accommodated, and that such paying patients should be allowed to employ their own physician or surgeon.

The last three rules are to the effect that the patients may not "swear, curse, get drunk, behave rudely or indecently, on pain of expulsion after the first admonition, that there shall be no card playing or dicing, and such patients as are able shall assist in nursing others, washing and ironing the linen, and cleaning the rooms, and such other services as the matron shall require."

These rules are signed by Benjamin Franklin, Clerk,

[1] T. G. Morton, History of the Pennsylvania Hospital, 1895; F. R. Packard, The History of Medicine in the United States, 1901.

by the Speaker of the Assembly, and by the Attorney-General.

The first visiting staff consisted of Thomas Bond, Lloyd Zachery, and Phineas Bond, whose services were rendered gratis. There was also a consulting staff composed of Cadwallader, Graeme Moore, and Redman.

There was drawn up a list of rules governing the appointments of physicians and their conduct,—rules not very dissimilar from those in force to-day. The managers retained all powers in their own hands, with the right of dismissal at any time, although the physicians' services were gratis,—a custom which, curiously enough, still obtains throughout the land.

Fortunately, the essential ignorance of hospital matters which must inhere in a body of men not specially trained is usually mitigated by the presence on the boards of one or more properly qualified physicians.

So the Pennsylvania Hospital started out, humbly enough, to be sure, but in competent hands; and after four years of such existence the corner-stone of the present ancient building was laid, Franklin writing the inscription:

IN THE YEAR OF CHRIST
MDCCLV
GEORGE THE SECOND HAPPILY REIGNING
(FOR HE SOUGHT THE HAPPINESS OF HIS PEOPLE)
PHILADELPHIA FLOURISHING
(FOR ITS INHABITANTS WERE PUBLICK SPIRITED)
THIS BUILDING
BY THE BOUNTY OF THE GOVERNMENT,
AND OF MANY PRIVATE PERSONS,
WAS PIOUSLY FOUNDED
FOR THE RELIEF OF THE SICK AND MISERABLE;
MAY THE GOD OF MERCIES
BLESS THE UNDERTAKING

It is needless here to relate further the history of this famous institution. The three great names connected with its first half-century are those of Franklin, Bond,

and Rush, and it continues to-day a splendid monument to their wisdom, foresight, and ability.

Coincident with the founding of the hospital, or perhaps as a corollary to it, was the establishment of a Medical Department in the College of Philadelphia. This was so pre-eminently the work of one man, Morgan,—most ably seconded, to be sure,—that the tale of his short, diversified, and brilliant career best illustrates the theme.

We have seen how the medical ability of the first hundred years of the American colonies exercised itself mostly in practising and writing. Incidentally, of course, the doctor's true function, teaching, was not altogether neglected; but what feeble learning was developed in those earlier days depended on the rough-and-ready methods of general practitioners and the dim reflection from the European universities.

Although Harvard College was founded in 1636, Yale in 1701, and other similar institutions in fairly rapid succession, no sustained endeavor had been made for the wider training of professional men other than the clergy until the pioneer enterprise of the College of Philadelphia, some ten years before the Revolution.

Benjamin Rush has been called the "Father of American Medicine," but we must call John Morgan its grandfather.

A most picturesque personage was this John Morgan, like so many others—masters in medicine—of whom we are wont to think well. Indeed, his pleasing, youthful countenance and that expression of the eyes which used to be called sprightly, as he looks out at us from the well-known portrait, are suggestive of a Waverley hero rather than of a renowned and accomplished physician.

There is much in the life of the man, especially his early life, that suggests the English Sir Astley Cooper. Of good station by birth, brought up among the best people of Philadelphia, in comfortable circumstances, aloof from

the strenuous necessity of the frontier, he developed a precocity and a love of science which promised a brilliant and successful future. Wisely he was restrained from too early an education, and much of his boyhood was passed in out-of-door sports and pastimes. At the age of twenty-one, however, he was graduated in arts from the College of Philadelphia, in 1757, with the first class of that institution. Then to the study of medicine. We know the custom of medical education in that day. Morgan followed it, and began his studies with the well-known Dr. Redman, of Philadelphia.

This was the period of the old French and Indian War, a time especially propitious for the practice and perfecting of the young graduates, and Morgan early found service in the English and colonial armies. The experience seems to have given a breadth to his understanding and ambitions which the simple training of his old preceptor failed to impart. He soon found, in the competition which he encountered among foreign trained surgeons, that his acquirements were by no means commensurate with his ambitions, so in 1760 he resigned from the service and went to Europe.

Those were the days of the Hunter brothers in London, and with the elder, William Hunter, Morgan passed many months in the study of anatomy and surgery; then he went to Edinburgh, where he became the friend and pupil of Cullen, the Munros, Rutherford, Whytt, and Hope.

There he spent two years, and was graduated a Doctor of Medicine from the University. Not content with this extensive training, which would have more than satisfied most young Americans of that time, he repaired to Paris, studied under Sue, and was admitted to the Academy of Surgery.

His travels and inquiries took him farther,—to Holland and Italy. It is told of him that he had a long interview with Voltaire in Geneva and won the friendship of Mor-

gagni in Padua. That elderly scholar, already in his eightieth year, seems to have been something of a wag, for he pointed out the resemblance between his own name and that of the young American, claiming distant kinship,—a fact which good Dr. Thacher notes with cumbrous mirth.

After all this travelling about and absorbing of useful information, Morgan returned to London, where he was made a Fellow of the Royal Society, a member of the College of Physicians, as well as M.C.P. of Edinburgh.

Morgan had spent five years in these pleasant pursuits and goodly company before he found it convenient to return home; and, fortunately for us, besides the acquirement of knowledge, he had developed a very real and determined purpose to exploit his learning in his native town.

There is no reason to suppose that before his departure for Europe Morgan had entertained any definite views on the founding of a medical school, but during his foreign travels that purpose was certainly conceived and matured, and in the development of his plans he was ably assisted by his friend and fellow-townsman, William Shippen, Jr. So in 1765 he returned to Philadelphia laden with letters and testimonials, and at the public anniversary commencement of the College delivered his famous "Discourse upon the Institution of Medical Schools in America." [2]

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[2] "It is now more than fifteen years since I began the study of medicine in this city, which I have prosecuted ever since without interruption. During the first years I served an apprenticeship with Dr. Redman, who then did, and still continues to enjoy a most justly acquired reputation in this city for superior knowledge and extensive practice in physic. At the same time I had an opportunity of being acquainted with the practice of other eminent physicians to the hospital, whose prescriptions I put up there above the space of one year.

"The term of my apprenticement being expired, I devoted myself for four years to a military life, principally with a view to become more skilful in my profession, being engaged the whole of that time in a very extensive practice in the army, amongst diseases of every

This discourse of Morgan is the most notable American educational essay of the eighteenth century. It was far from being purely academic. It was written and delivered with an immediate and definite purpose. It had been conceived years before, and the project had been gathering force with the broadening intellectual development of its author. For a whole year it had been held in manuscript form.

Written in Paris in 1764, it had been frequently revised, submitted to Hunter, Fothergill, and Watson in London, and was worked out faithfully to meet not only the general proposition of medical education, but especially to cover the conditions existing in immature America. After rehearsing the existing status of American medicine, calling attention to the growing needs of the country, and describing his own unusual and laborious career hitherto, Morgan went on to point out in detail the proposed curriculum, giving their proper places to the fundamental studies of anatomy, physiology, chemistry, the natural sciences, the theory and practice of physic, surgery, and midwifery. He earnestly described the numerous advantages which would come to the profession and community by the formation of a medical school, and his eloquence seems so to have roused his audience that the foundation of such a school straightway appeared the one paramount interest.

Besides his own enthusiasm and prophetic words, Morgan had come home laden with earnest appreciative letters from his friends in Europe, notably Thomas Penn, and

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kind. The last five years I have spent in Europe, under the most celebrated masters in every branch of medicine, and spared no labor or expense to store my mind with an extensive acquaintance in every science that related in any way to the duty of a physician; having in that time expended in the pursuit a sum of money of which the very interest would prove no contemptible income. With what success this has been done, others are to judge and not myself."

these writings carried no little weight with the authorities at home.

It would not be fair to assume that Morgan was the only promoter of the scheme. Mention has been made of William Shippen, Jr. This eminent man was prepared, in a way scarcely inferior to his friend Morgan, for the new undertaking. The two were born in the same year, 1736. Shippen came of a well-known medical family; his father, William Shippen, Sr., was long a prominent practitioner in Philadelphia. He himself was liberally educated and was graduated from the College of New Jersey, as Princeton was then called.

After studying some time with his father, he, too, went to Europe and enjoyed the instruction of John Hunter in anatomy and William Hunter and McKenzie in midwifery; then he was graduated in medicine from the University of Edinburgh. After five years he returned to Philadelphia, in 1762, three years before the advent of Morgan.

Thoroughly imbued with the importance of medical teaching, he immediately opened a course of lectures on midwifery, probably the best special course on that subject given up to that time in this country.

Such private teaching as that instituted by Shippen was not an absolute novelty in America. William Hunter, of Rhode Island, a relative of the famous Scotch Hunters, and other energetic men had done similar work, useful though spasmodic; but to Shippen has been given a credit and honor out of all proportion to that of those others.

Controversy over such a matter must always be futile, but one can hardly feel that "to Shippen more than any other man" is due the advancement of medical studies in the colonies. Shippen enthusiastically taught in private while still a young man, and fame came to him later as a distinguished University professor. Morgan projected a great medical school. The two men—Morgan and Ship-

pen—were in close touch through those preparatory years; and Morgan in London, well advised of Shippen's lectures at home, corresponded with him urgently on the subject of the proposed school.

Thus it came about that in 1765 the two young men, then but twenty-nine years old, approached the great subject with almost equal preparation, vigor, and enthusiasm. Their zeal was so infectious and their fitness so apparent that when the trustees of the College arranged to launch the medical school, Morgan and Shippen[3] were at once chosen for the two important chairs of the Theory and Practice of Medicine and of Anatomy and Surgery respectively.

From the outset these two men controlled for many years the policies of the new school, and their recommendations were promptly accepted by the trustees.

The College was to confer two degrees in medicine, the Bachelor's and the Doctor's, although in the next generation the Bachelor's degree was abandoned. As to that degree, it was premised: first, that the candidate for matriculation should show efficiency in the natural sciences

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[3] "To the Trustees of the College, etc.:

"The instituting of medical schools in this country has been a favorite object of my attention for seven years past, and it is three years since I proposed the expediency and practicability of teaching medicine in all its branches, in this city, in a public oration, read at the State House, introductory to my first course of Anatomy. I should have long since sought the patronage of the Trustees of this College, but waited to be joined by Dr. Morgan, to whom I first communicated my plan in England and who promised to unite with me in every scheme we might think necessary for the execution of so important a point.

"I am pleased, however, to hear that you gentlemen, on being applied to by Dr. Morgan, have taken the plan under your protection, and have appointed that gentleman Professor of Medicine.

"A professorship of Anatomy and Surgery will be gratefully accepted by, gentlemen, your most obedient and humble servant,

"William Shippen, Jr.

"Philadelphia, 17th September, 1765."

and Latin, and that, during his studies, he should attend at least one course of lectures in anatomy, materia medica, chemistry, the theory and practice of physic, and one course of clinical lectures, and should "attend the practice" of the Pennsylvania Hospital for one year, after which he should be admitted to the examination for the Bachelor's degree. It was further provided that he must also have served an apprenticeship with some physician. Then for the later Doctor's degree the candidate must wait three years and write and defend a thesis.

Such was the extent of education required in those early days. It was a very great step in advance; it meant more than we are wont to allow. The long apprenticeship preceding the lecture course was a very real thing, an era of hard work and much faithful reading. The student was constantly under the eye of a competent master; he received personal instruction, and his individual needs, failings, and capacities were better known and observed than became possible in that long subsequent era in the next century when students herded in great classes, unindividualized and almost unknown to their teachers.

In these later days we have returned in a large measure to the personal teaching, and with wider knowledge; but the early simple method had much of merit. The one year of lectures and study seems to us now all too short, but we must remember the foregoing apprenticeship; and then the Doctor's degree was withheld until after three years of approved work.

The one flaw in the carefully prepared scheme, however, was the fact that for most men of the unambitious kind that Bachelor's degree sufficed. They left the school after one year, with the license to practise; they were called "Doctor" by their neighbors, and were satisfied with that. Why should they weary themselves with study and further public speaking before a strange and critical audience, merely to write M.D. for M.B. as their title?

That explains the infrequency of the Doctor's degree in the old lists and the traditional respect for those two letters, M.D., now held by groaning thousands in the land.

Two other men were added shortly to the little staff: Adam Kuhn, Professor of Materia Medica and Botany, and Benjamin Rush, Professor of Chemistry. Kuhn was appointed in 1768, when he was but twenty-seven years old. Born and bred in Philadelphia, he was educated at the University of Upsala, where he became a favorite of Linnæus; then he went to Edinburgh, was there graduated in medicine in 1767, and returned to Philadelphia the following year. His lectures began in 1769.

Rush was still younger. Born in 1745, he was but twenty-four at the time of his appointment; and although already prominent, his later and multiplied activities were so conspicuous that he seems to belong to another generation, with which must be told the story of his life.

For many years after their founding, the hospital and medical school struggled on, often against heavy odds. The four young men, upon whom, with Bond, the burden of teaching rested, were soon overwhelmed with cares; for the Revolution was impending, and their abilities and zeal were claimed by their struggling compatriots in arms.

The Commencement of 1771 must be noted, for it is a landmark. In June of that year there returned for the Doctor's degree four men who had been graduated Bachelors of Medicine in 1768: Jonathan Elmer, Jonathan Potts, James Tilton, and Nicholas Way, the first Doctors of Medicine graduated in Philadelphia.

Strangely enough, though Philadelphia established the first medical school, and granted the first degrees of B.M., it did not graduate the first doctors. The Medical School of New York, established in 1768, gave the B.M. in 1769, and the first Doctor's degree granted on this continent

was bestowed there, in 1770, upon Robert Tucker, and the second, in May, 1771, upon Samuel Kissam.

The Philadelphia school knew many vicissitudes before it gathered mature strength. During the Revolution it languished; a few scattered lectures were given in those years, but teachers and students were mostly busy with other things. Some of the trustees were Tories, although most of them were Whigs; but the College came under popular suspicion, and in 1779 the Assembly revoked its charter and conferred its powers and privileges upon the University of the State of Pennsylvania.

Then ensued turmoil, struggle, and heart-burning which avail nothing in the telling. The new University, with its grander name, was the favorite of patriots,—unjustly so, it seems; but most of the old College teachers refused to join the new movement. Indeed, Shippen was the only one who accepted at once a professorship in the University. Later others joined him; but after the war Benjamin Franklin and old friends of the College renewed their efforts to remove the stigma on its good name, with the result that its charter was restored in 1783; the old professors were reinstated,—Shippen and all; and finally, in 1791, the two institutions were united under the title of "The University of Pennsylvania," which still flourishes in our midst.

In the middle of the eighteenth century New York was a very pleasant place, for there lived and practised medicine there Dr. John Bard, of whom Thacher says, "By the urbanity of his manners, his professional talents, and the charm of his conversation, which was enlivened by an uncommon flow of cheerfulness, enriched by sound sense and adorned by a large fund of anecdote, he so effectually recommended himself to the notice and friendship of the most respectable families, that he was almost immediately introduced into a valuable scene of business and very soon arrived at the first rank of professional

eminence, which he retained through a long life of more than fourscore years."

The man was truly eminent. He proved himself New York's earliest efficient quarantine officer; he was an indefatigable worker; surviving the Revolution, he was the first president of the Medical Society of New York, and he was the father of an even more distinguished son, Samuel Bard.

It seems fair to say that Samuel Bard was the most eminent American physician of his time, with the single exception of Benjamin Rush. His life was long, his experiences varied and extensive, his acquaintance wide, and his services to American medicine of the greatest value. Among his earliest and most notable achievements was his part in the founding of the medical school and hospital in New York; and his efforts continued through more than forty years, against the most discouraging conditions, to foster and promote medical education.

It would not be fair, however, to assign to him alone the credit for these good works. More, perhaps, even than Philadelphia, New York was supplied with a body of excellent physicians, and the starting of a school in emulation of Philadelphia was the result of their combined efforts; but Bard was the most constant and urgent of them all, and after the school was under way he did not rest until he had founded and helped to launch a proper hospital.

There is abundant material for a sketch of Samuel Bard's life; indeed, the Rev. John McVickar, quoted by Thacher, has given a long account thereof; but, as he tells it, it was not of so much interest in itself as it was notable for the shifting, varied scenes through which it passed.

Samuel Bard was not a native of New York. At the time of his birth (1742) his father was an active medical practitioner in Philadelphia, but shortly after removed to

New York, where he acquired that popularity which we have seen. The son grew up there, and was educated at King's College, whence he was graduated in 1761. During his boyhood he had the advantage of an intimacy with the Colden family, and spent many months at their country place on the Hudson. It all sounds so familiar and modern that we are wont to forget that those were the days of "The Last of the Mohicans," and that, within fifty miles of Coldenham, Indians were roving the woods and white scalps were occasionally being taken. However, Bard was safe from all that.

If one remembers that he was about ten years Washington's junior, one can more readily conceive the sort of men and manners that he knew. At the age of nineteen he went to London and Edinburgh, receiving the degree of the latter University in 1765; so we see that he was a little younger than his friend Morgan, but was brought under the same influences in the course of his education. He, too, was filled with the thought of an American school of medicine, and, largely through his urging, the race for first place between New York and Philadelphia was a close one.

The experience of Bard differed much from that of Morgan in the scope and choice of his associates in the proposed undertaking. The Philadelphia school was the project of young men, conducted by young men. Bard, in New York, became at once associated with an older generation, waiting, apparently, for the impulse which he could give. Five of those older men became his colleagues, and in the year 1768 the Medical School of King's College was established.

The chairs were held by Samuel Clossy, Anatomy; John Jones, Surgery; Peter Middleton, Physiology and Pathology; James Smith, Chemistry and Materia Medica; John V. B. Tennent, Midwifery; and Samuel Bard, Theory and Practice of Physic. To one in any way

acquainted with the life of old New York every one of these names is full of interest and suggestion, but, with one or two exceptions, they must be passed by quickly.

Clossy was a clever Irishman who had been but four years in America. His reputation was made in the old country, and he had published a treatise on Morbid Anatomy. The Revolution saw the end of him, for he was an Irish Tory and went back to his native land.

John Jones was of quite another type. First and last, a good deal has been written of him. He was a first-rate, hard-working, well-educated doctor, with a line of Pennsylvania and Welsh ancestors, — Wynnes, Stephensons, and such among them. As we should expect, he was educated in Europe, and when he came home, in 1753, he had the ambition to devote himself to surgery,—a unique ambition there and then. I suspect that his Paris experience led him that way. He had come under Petit and Le Dran,—the latter, perhaps, the most stimulating teacher of his time; his writings are delightful and full of new facts even to-day. Jones had a good trial of military surgery, too. In the early days of the old French War he volunteered as surgeon, saw much service, and did much good work. Indeed, he became so well known that Baron Dieskau, wounded and captured at Lake George, asked to be put under his care. Jones returned to private practice after this campaign.

He was seven years older than Morgan, who entered the army some five years after Jones himself, and the two men came to know each other well in later strenuous times. He was a straightforward, independent man, free from humbug, and those qualities got him into trouble with his colleagues in his early days. The circumstance throws a curious light on the professional habits of the time.

For some foolish reason the New York doctors thought it wise to adopt a peculiarity of costume which might distinguish them from the general public. Accordingly they

decided to have their hair dressed after a particular fashion. Most of the better-known practitioners adopted it; but Jones thought it absurd, and would have none of it. So he came to be cut by many of his friends and hated by others. One man even went so far as to refuse to meet him at a consultation demanded by a patient, and explained his reasons. That was the end of the hair-dressing business. The public laughed at the new decorations, and employed Jones, with the effect on the pigtails which we might expect; so Jones became a successful man, and not altogether by reason of his straight hair.

He did many good things in the world; taught surgery well, among other doings, having learned how from his old friend and master in London, Percival Pott. He wrote a book, too, for the Revolutionary surgeons: "Plain, Concise, and Practical Remarks on the Treatment of Wounds and Fractures." Altogether he was an interesting and useful person.

Peter Middleton was older than most of his teaching colleagues. A Scotchman born, he came out to New York about 1745, and was for many years a conspicuous practitioner. His work and opinions are constantly referred to by his contemporaries, but, beyond the words of others, we have little of his own by which to judge him. At the opening of the medical school he delivered an address on the History of Medicine, to which all the biographers refer. One reads it sadly and with labor. Writing was not the good man's forte.

Of his pathological lectures one thinks with some compunction for the audience; but I know not: he may have been more luminous than we are aware.

Then there was James Smith, the chemist, of whom we know only that he was a brother of the historian of New York.

And, lastly, John V. B. Tennent, of New Jersey, a learned man and member of the Royal Society, who be-

came distinguished as an obstetrician, and was called to the chair of Midwifery in the new school.

Of the last two (Smith and Tennent) there is little to tell. The latter died young, but the founding of a chair of Midwifery is a note of interest.

Up to the middle of the century obstetrics had been mostly in the hands of untrained women throughout the country. The mothers of the land gave birth to their children with little other care, so that one may imagine what a godsend it was when James Lloyd, of Boston, came home from London in 1752, well equipped to take up this special line of work. Then, ten years later, came Shippen to Philadelphia and Tennent to New York. Moultrie, of Charleston, too, had become the refuge and solace of those Southern ladies of whom we know.

Meantime, in New York the medical school is being founded, with Bard, Jones, and Middleton its most distinguished lights; Bard much the youngest of all: twenty-six years old only; very full of the energy of youth.

Besides his energy and learning, he had brought with him a piece of advice from good Dr. Fothergill, of London. At parting, Fothergill told Bard this of his own great success: "I crept over the backs of the poor into the pockets of the rich." Truly, a text for a young man. The biographer hastens to explain that this is not so bad as it sounds. Elaborated, read it thus: "Practice among all classes; be indispensable to the whole community; your work among the rich is uncertain, their patronage limited and fickle; with the confidence of the masses behind you, you can always retrieve misfortune." Such thoughts are shrewd and salient among us to this day.

So the school was founded, to flourish fitfully and painfully, shattered and obstructed by war and rivalry for many years. We chronicle it here because, with its Philadelphia comrade, it knew colonial days. The course of studies was much like that of Philadelphia: a Bachelor's

degree conferred after one year, and the Doctor's degree given after a wait of only one year more. So, as was said, the first Doctors of Medicine graduated in the land were New Yorkers: Robert Tucker, 1770, and Samuel Kissam, 1771.

In connection with the founding of these two schools it is interesting to note that Morgan and Middleton, the respective initial spokesmen, place the highest value on a broad preliminary education,—an equipment which only now, after the lapse of more than a century and a quarter, we are beginning to demand of the matriculates in our leading schools.

Both Morgan and Middleton were men of wide culture for their time, or any time. In our glance over the medical conditions existing in colonial America, we have taken note of a few conspicuous figures; but we must not forget that the rank and file of our doctors were sadly ignorant and untrained. Quick intelligence and little knowledge had brought the profession to a lamentable pass. Quackery flourished untrammelled; the few regulating laws were futile to oppose or suppress it. Long separation from Europe and a lack of American schools had sunk the standard of requirement to such a point that the lapse of a whole intervening century has hardly sufficed to obliterate the reproach, to raise us to the European standard, and to place the whole body of physicians on the plane of the other professions. Much yet remains to be done.

No better schools than our best schools are to be found in the world; nowhere in the world are to be found schools as bad as our worst.

The early years of the New York school were even more checkered than those of the College of Philadelphia. The Revolution bore hardly on the former city, and for six years the town was occupied by British armies, whose presence put an end, for the time, to the College work. The faculty was divided sharply on the great political

question, and after the restoration of peace never came together again as a unit. Three years after the war an attempt to reorganize the medical school failed, though the College went on under its new name, Columbia. Again, in 1792, the school started up feebly, with Bard at the head of the faculty, and through many years struggled, hampered constantly by dissensions in the profession itself and what seem to us now almost unaccountable jealousies between the leading physicians of the city.

Early in the last century, to complicate the situation, the New York University started a medical school of its own, and gave it the name now famous, "The College of Physicians and Surgeons." This was in 1807, and the teaching staff numbered many well-known men among its members. But the new institution soon got into trouble. Dissensions in the faculty brought it to a low ebb, and the lack of consistent courses so discouraged the students that there was a great falling off in their numbers. The fact seems to have been that there was not in New York, at that time, clinical material and teaching talent enough for the successful conduct of two schools. The only remedy lay in a union, and in the year 1811 this was successfully accomplished. The two were united under the name of the younger, old Samuel Bard was made president, an efficient and congenial faculty was selected from the rival staffs, and the College of Physicians and Surgeons started prosperously out on its long and successful career.

The Medical School of King's College had been founded and the Philadelphia Hospital had flourished for twenty years before the establishment of the New York Hospital. This reversal of the usual order of events was common to both New York and Boston. To our modern view a medical school cannot exist without a hospital as a background, and, indeed, that has been the usual experience of the world; but in New York and Boston, in the

eighteenth century, schools existed some years before the hospitals. In New York, indeed, the hospital was not firmly and fairly established until twenty years after its first projecting; and, first and last, it was to Samuel Bard that it owed most.

Before a distinguished audience, at the King's College Commencement, in May, 1768, Bard pleaded so eloquently the importance and necessity of a hospital that it was at once taken in hand by the citizens, Governor Sir Henry Moore heading the list and urging it upon the Legislature. The enterprise was successful without any of the shifts and difficulties previously encountered in Philadelphia. The citizens subscribed, the Legislature granted an annual allowance of eight hundred pounds for twenty years, and the corporation of the city voted a suitable building site.

Nor were foreign friends lacking. Dr. Fothergill, of London, the same who had so shrewdly advised Bard how best to reach the pockets of the rich, had, with the aid of Sir William Duncan, raised a considerable sum for the hospital.

Dr. Fothergill is a man for whom American doctors should cherish a kindly regard. He liked us and our ways, our students in London found a ready friend in him, and, like Charles James Fox, he remained always our stanch champion. This New York Hospital business was not the first of his good deeds of that kind. He had helped the Pennsylvania Hospital years before with books, pictures, and anatomical casts, and had stirred up Thomas Penn to send a chemical outfit.

In 1770, then, Bard, Jones, and Middleton petitioned their friend, Cadwallader Colden, to further this great object of his professional colleagues; and the old man, then Lieutenant-Governor, granted a charter of incorporation for the hospital, under the title "The Society of the Hospital of the City of New York in America."

The work went vigorously forward. Money was continually solicited and raised in a variety of ways, elaborate plans were drawn after a scheme devised by Jones during a visit to London in 1772, and early in 1775 a fine stone building was practically completed, when it took fire and burned to the ground. Then they went to work again and drew new plans and raised more money and built another building, and the first use they put it to was the holding of the Provincial Congress there in the second year of the Revolution, April, 1776.

Soon the Continental surgeons got to work, without disturbing the Congress, it would seem, and the hospital was found a very present help in time of trouble. Indeed, the first operation was done there in July of that same year by Samuel Drowne, an army surgeon's mate. To such work, however, there came speedily an end. The British arrived; the hospital was turned into a barracks; and Bard, Jones, and Middleton went their several ways: the first two with the Continental armies. The last remained at home, under the enemy's protection, feeble in health, to die before the war came to a close.

Such, most briefly, is the tale of the hospital's founding: a founding so tedious and retarded that its purposes were never devoted to New York folk as colonials; but the men who projected it and struggled in its cause were colonial men, and so the subject merits these few words here.

Even after the war the tale wanders feebly on for ten more years, of which years and events notice must be taken in their place. Suffice it that in 1791 the hospital was finally and successfully equipped and started on its course.

INTRODUCTION TO CHAPTER V.

Before going further with our tale, it is well to glance briefly at the conditions, political and scientific, which obtained in Europe about the era of the American Revolution.

With the accession of George III., in 1760, there was inaugurated an attempt—brief and inglorious—to return to the system of one-man power in the state. The story of the feeble and foolish struggles of this narrow-minded king needs no repetition in detail. He sought to make his personal wishes paramount in the national councils; and, realizing the danger of frank despotism, he tried to attain his ends through the use of a weak-kneed and complacent ministry, sustained by and drawn from the ranks of a venal and debauched party.

So far as America was concerned, there followed the successful termination of the old French and Indian War in 1763 and the Peace of Paris, which left Canada and Florida in the possession of the British, with the Mississippi River the western boundary of the colonies; the passage of the Stamp Act in 1765 and its repeal in 1766; the imposing of various offensive duties, including that on tea in 1767; the creation of custom-houses and the quartering of troops in America; the so-called "Boston Massacre" in 1770; the "Boston Tea-Party" in 1773; the Boston Port Bill in 1774; the capital trials act in the same year,—all these things and many others, culminating in the assembling of the first Continental Congress on September 5, 1774. The next year came Lexington and Bunker Hill, precipitating war.

Of France, the other country with which we were most

immediately concerned, one remembers that the amiable and unfortunate Louis XVI. succeeded Louis XV. in 1774; and that, after Lafayette and many other enthusiasts had joined the Americans, the king, for reasons of policy, saw fit to arrange an alliance between France and the revolted colonies in 1778.

Now, the physicians and men of science who made memorable the eighteenth century in Europe are too numerous for individual mention here, but we must give them a passing glance.

The Englishman Cheselden adorned the first half of the century, dying in 1752. He taught some of our Americans, as did the three Alexander Munros, of Edinburgh, the eldest of whom died in 1767,—all anatomists and surgeons.

Probably the ablest English surgical clinician of the century was Percival Pott, who died in 1787, the friend and preceptor of our own John Jones.

The famous Hunter brothers, of London, whose years run from 1718 to 1793, made the greatest impress on their times; most of all John, the younger. One must remember of him that more than all others he saw science as we moderns see it; that he sought the truth earnestly throughout his professional life, accepting nothing without proof; and that after the lapse of more than a century the English-speaking world looks back to him as the most dignified and commanding figure in our annals of surgical science because he made possible that science as it is.

On the Continent, Haller, of Berne, is the great name for us. Of tireless energy, enormous capacity for work, broadly educated, with a constant love of science and an unusual grasp of its meaning, he rose to eminence as an anatomist, surgeon, and physiologist, and came to be regarded as the father of that last great branch of our work.

Then there were Sömmering, of Frankfort; Winslow, of Paris; and Morgagni, of Venice, the founder of pathological anatomy as a science.

These are a few of them; and they interest us more directly because they dominated that old medical world, they were sought out by our Joneses, Bards, Morgans, and Shippens, and so their work and their teaching were coming in some fashion to the knowledge of our American doctors about the time of the Revolutionary War.

CHAPTER V.

THE EIGHTEENTH CENTURY. THE REVOLUTION.

In the foregoing chapters we have seen something of the planting of medical science in the New World and the type of men who brought it hither. At first it compared not unfavorably with what was known and practised in Europe, for many of the pioneer doctors were educated men and others returned to the old countries for their training. As that early generation died out, however, there came a decline in the standard of excellence, and, save for the foreigners who found their way to these shores and a few wiser ones of our own, the medical attainments of our ancestors were not high. This was to be expected from a lack of schools in the colonies, as we have seen; and only with the rise of the schools and the spreading abroad of a higher learning was the remedy slowly found.

So it came about that in the war of the American Revolution American surgery played but a sorry part. Some exceptions there were: Jones and Bard, Morgan and Warren, and a few others; but mostly the services rendered the troops were scandalously crude and on a par with much that was feebly and foolishly done in other departments of the public service.

When we come to consider men and measures in the surgery of our Revolution, these names stand out conspicuously,—all Philadelphians: Morgan, Shippen, and Rush; the two former physicians-in-chief of the army, the last prominent in affairs of state and a prolific writer and missionary in affairs medical. And the conspicuous fact about the personnel of the medical department was

the apparent sharp line of cleavage between the officers of the general hospital (who seem to have been well-qualified, faithful men, too few in numbers) and the regimental surgeons, their subordinates in rank and notably their inferiors in equipment, in efficiency, in fidelity, and in morale.

As we can divide the surgeons of the Revolution into two classes, so, for the sake of convenience, may we divide the surgical events of the war into two eras: the first when John Morgan was director-general and chief physician of the army; the second when William Shippen, Jr., held the same office. There were other chief physicians: Benjamin Church for a few months after Lexington, and John Cochran for a few months towards the end of the war; but Morgan and Shippen are the most conspicuous names.

Although the chiefs of the medical department were Philadelphians, that city did not furnish its proportionate number of surgeons for the war; indeed, so far as one may judge from available writings, the greatest number of surgeons came from the neighborhood where the initial fighting took place. Except a few prominent Tory physicians resident in Boston, nearly all the active and prominent contemporary doctors of Massachusetts first or last took service with the armies, and in the Massachusetts Provincial Congress of 1774-1775 there were twenty-two physicians.[1]

[1] Joseph Batchelder, of Grafton, Worcester County; William Bayliss, of Dighton, Bristol County; Chauncey Brewer, of West Springfield, Hampshire County; Alexander Campbell, of Oxford, Worcester County; Benjamin Church, of Boston; David Cobb, of Taunton, Bristol County; William Dunsmore, of Lancaster, Worcester County; John Corbet, of Bellingham, Suffolk County; Isaac Foster, of Charlestown, Middlesex County; Ephraim Guiteau, of New Marlborough, Berkshire County; Jeremiah Hall, of Pembroke, Plymouth County; James Hawse, of Westborough, Worcester County; Samuel Holten, of Danvers, Essex County; William Jamieson, of Meriden, Worcester County; David Jones, of Abington, Plymouth

At the beginning of the war there was no general military organization, even in name, much less a department of surgery, and, as one might expect, the building up of so complex a department was a difficult and tedious task. Mostly, the colonies were ill equipped with competent medical men; although, fortunately, there were some few brilliant exceptions, whose experience embraced not only an acquaintance with European surgery but a considerable army service in the French and Indian wars.

Every reader is familiar with the disheartening difficulties with which Washington struggled for years in his commissary and equipment departments, the needs of which could be made evident to the dullest minds; but those difficulties were trifling compared with the trials of the medical department.

From the very outset every variety of supplies was scanty or entirely lacking. Instruments were few, and the makers were too busy turning out guns and swords to supply the need. Drugs were few, bad, and of small variety. Hospitals and hospital corps had to be created; hospital supplies were not to be had. Opium and quinine were scarcely to be found; ether was unknown. The one disease which was successfully combated was smallpox, for which inoculation was practised, and constantly throughout the war whole army corps submitted to this operation.

Fortunately, although the Continental Congress had been able to provide and prepare for none of these things, the various colonies had in some fashion anticipated such needs,—most indifferently, to be sure; and the best-

County; Moses Morse, of Worthington, Hampshire County; Richard Perkins, of Bridgewater, Plymouth County; Charles Pynchon, of Springfield, Hampshire County; Ebenezer Sawyer, of Wells, York County; John Taylor, of Summerburg, Worcester County; Joseph Warren, of Boston; William Whitney, of the towns of Egmont and Alfred in Berkshire County.

equipped of them all, as it was the first one to be forced into the field, was the colony of Massachusetts.

When one attempts to unravel the rather confusing and unsatisfactory accounts of medicine at the outbreak of the war, one finds that all roads lead to Bunker Hill, and that it is there and in the neighboring camp at Cambridge that all the interest centres. So when we look for the early conspicuous names, we find there two which come at once to the front,—Church and Warren.

Warren—there were two of them, Joseph and John—came to be the better known, and the elder, Joseph, in his short life and brief military experience so impressed men's imaginations that for more than a hundred years his name has been in the mouth of every school-boy. But it is as a soldier and patriot that he is best known to us, and for our purposes he must be passed briefly.

Of all the Massachusetts men of the day,—and they were many and able,—Warren is, for a brief space, the most luminous figure. Meteor-like, as it were, he flashes out in the Old-World tale: a social lion become a patriot, a young doctor turned orator.

There was much in him to excite instant admiration. He was thirty-five years old, handsome, accomplished, a good fellow, a genial companion, talented, successful, generous. Forward in the patriot movement, he proved himself a brilliant and persuasive orator: a thorn in the side of the English authorities, a hero to his American friends. It was he who started Paul Revere on his famous ride, and he was one of the first to forsake home and practice to hasten to the side of the yeomen at the famous Lexington fight.

After that, and while the Provincial army was closing in about Boston, he was incessant in military activity. He had been elected President of the Provincial Congress, and three days before Bunker Hill he was appointed major-general of the colony's forces. Previous to this he

had been requested to take the office of physician-general to the army, but declined, preferring active service in the field.

So we see him, pre-eminent in position, in influence, a perfected product of his time, ripe for the great work which lay before our people, whether in the senate, the hospital, or the field. Then came the 17th of June and the battle of Bunker Hill.

Just how Warren came to be an actor on that famous day must always be a matter of some doubt. The assigned troops under Prescott had taken position overnight on the hills behind Charlestown, overlooking Boston and the upper harbor, and the attack by the British had already begun when Warren appeared on the field. I need not rehearse the familiar tale. With characteristic courtesy he declined the command offered him by Prescott, and, taking a musket, volunteered in the ranks. Certainly a most irregular proceeding; but one wonders now whether that spirit, that example of self-sacrifice, that readiness to share the common lot, have not, in the light of history, wrought more for honest patriotism and for the advancement of true democracy than any parading of gold lace, or high-sounding etiquette, or the commanding of cohorts, or much talking in public halls. At any rate, that day saw the end of Warren and all that he might famously have done. He stood in the ranks through the fight, he did his duty modestly as he saw it, he used his ancient gun until he could use it no longer, and then, with powder exhausted, comrades fleeing, and the English rushing in, he was shot dead, among the last at his post.

It is a not unpleasing tale, as one digs it out of the records, old and new. The life was a full one; it was well worth the living, and the man comes down to us a very real figure, towering calm and fine amid all the men who crowd the pages of our history.

Now, John Warren, the brother, concerns this narra-

tive more immediately than does his famous elder, but his youth and the purposes of his life brought him less conspicuously before the public; and though early in the service of his country and constant to her interests, his great reputation was made in later and more peaceful times. In the early years of the war, indeed, he was engrossed with continual and various activities. The tale of his life has been fully told us by his son,[2] and illustrates briefly the sort of times those were in the medical department of our army and the sort of men who came to do the work.

John Warren was twelve years the junior of his brother Joseph, under whom he had studied medicine, and he had been settled in practice one year, in Salem, Massachusetts,[3] when the Revolution came.

As we know, the New England militia was in a fashion organized, and Warren had been for some months on the roster as surgeon to Colonel Pickering's regiment. He went with his command to Cambridge, after Lexington, and, with a brief interval of absence, remained three years with the army. He was there when the Provincial troops were turned over to Washington, and he took part in the reorganization of the department when the Continental Congress assumed charge of the affairs of the army. Even before this the Massachusetts authorities had made an endeavor to improve the personnel of the medical corps, for on May 8 they had appointed a committee to examine candidates for the positions of surgeons and surgeons' mates.

Good James Thacher, the familiar author of the "American Medical Biography" and "Military Journal,"

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[2] The Life of John Warren, M.D., by Edward Warren, M.D., Boston, 1874.

[3] Edward Augustus Holyoke, aged fifty-six, was his only important competitor there; but Holyoke lived forty-five years longer, and died at the age of one hundred and one.

was a successful candidate in the June following, and became Warren's surgeon's mate, Warren himself having been made director-general of the hospital. That "Military Journal" is most instructive and entertaining reading. Take it in connection with Moore's "Diary of the American Revolution," and you will get a rarely luminous picture of the times.

It is the unanimous statement of writers on the medical conditions in the army that, with the exception of Massachusetts, the colonies neglected shamefully the care of their own sick and wounded. The regimental surgeons were named generally by the colonels (who disregarded professional attainments), and frequently some personal friend or political favorite received the appointment. Some regiments came into camp without any surgeon whatever. From first to last, as we have seen, supplies were lacking, and the regimental surgeons — inexperienced, inexpert, slighted, neglected, and harried—became shortly an almost mutinous band of independent and disorganized men.

It would be pleasant to believe and gracious to say that they were, as a class, competent, devoted, and patriotic; but the facts of history, in spite of the generalizings of prejudiced writers, do not bear out any such claim. Yet one cannot especially blame those men. They were the average of their kind. Their incompetence was due to a lack of education in medicine, and such training as they had was for civil life. They were selected at random, they received little supervision, direction, countenance, or advice, and the demands made upon their time and skill were usually beyond the bounds of reason.

Late in 1775, indeed, Congress took hold of the problem feebly, haltingly, and with little wisdom; there was some improvement, but not much. The faults were those of an undisciplined democracy, and have not been unknown in American wars of modern times. Even in 1776,

after a year of experience, Congress made some such provisions as these: that there should be one surgeon and five mates to every five thousand enlisted men; that special orderlies should from time to time be appointed; that the outfits of regimental surgeons should be subject to inspection by the hospital director and director-general; that reports should be made regularly; and that the expense of supplies should be met by the department director.

The hospital surgeons were to be paid one dollar and sixty-six cents a day, the mates one dollar, the hospital apothecary one dollar and sixty-six cents a day, and the hospital surgeons and mates were to take rank of regimental surgeons and mates (assistant surgeons). All of which is interesting, pathetic, and significant of the universal poverty. Fancy six physicians intrusted with the care of more than five thousand men in the campaigns of to-day. And their pay was less than what we now give to unskilled labor in the streets.

One thing the regulations provided: the proper ranking of hospital and regimental surgeons. The neglect of this had long been a source of serious trouble, and the settling of the vexed question made for an improved discipline.

After the arrival of Washington at Cambridge, early in July, some degree of order and discipline began to prevail in the medical branch of the service, as in the other departments. But the material he found to hand and his dependence upon the action of the Congress gravely hampered him. Fortunately, the colonials were confronting an inactive enemy, so that, beyond camp fevers and smallpox, the surgeons found little occasion for their skill. One would suppose that they might have employed their time in the perfecting of camp sanitation, the drilling of ambulance corps, and many other such essentials; but even in the best-equipped armies of Europe such details were little regarded, and the English, who taught us what little we

knew, had at that time long been under a lax and stupid discipline, caring little for the science of the military calling.

Warren, who was but twenty-three years old, proved himself a zealous and intelligent officer in such work as was done. He attended strictly to his duties, organized his hospital, trained his assistants, kept up a constant demand for further supplies, cared for the sick, sought to improve the morale of his fellows, and, as his assistant Thacher wrote, "acquired a great reputation in his profession, . . . distinguished for his humanity and attention to the sick and wounded soldiers and for his humane disposition." He came, indeed, to win the confidence of his superiors, and before the evacuation of Boston, in 1776, was looked upon as a young man who would be heard from later.

The departure of the British from Boston and the removal of the American army to other scenes opened for the medical department new and untried fields, and Warren shared their pains. From that time on, except when resident in winter-quarters, the surgeons had constant experience of active campaigning, and their slender resources were stretched constantly to breaking.

In May, 1776, Warren was in New York, fighting the dysentery which was affecting the troops, and for three months he was fully occupied in helping to bring his men into condition for the engagement which the whole country knew to be impending.

Of course the holding of New York City without a fleet or proper ordnance was an impossibility, but Washington feared the moral effect on the soldiers and on the country which would result from evacuating the place without fighting; consequently he planned and failed in the Long Island campaign in August of that year. Masterly retreat, evacuation, further retreat, and a series of small engagements followed, with all of which we have

little to do, except to note this, that in some fashion hospitals were established and shifted about as occasion demanded, and that just before the battle of Long Island Warren received the often-quoted razor letter from Director-General John Morgan:

"Sir,—I have sent to the surgeons, desiring the youngest off duty to go to your assistance and take four mates with him; to carry over 500 additional bandages and twelve fracture boxes. I fear they have no scalpels as whatever I have committed to the hospitals has always been lost. I send you two, in which case if you want more, use a razor for an incision knife. Let me know from time to time, at Long Island.

"J. Morgan.

"To Dr. Warren, surgeon of the General Hospital at Long Island."

And be it remarked that a razor is no mean instrument.

We need not follow this young Warren further in his army career. He has served, perhaps, to illustrate the best men of his class. His active campaigning lasted another year; then he was stationed at the army hospital in Boston, and so passed gradually back to civil life, to be heard of later, as we shall see.

Now, John Warren was but one of very many the recital of whose names and deeds would mean a great history of the war, and have they not mostly been enumerated of late by another?[4] There are, however, some few in the various colonies whom it would be invidious to neglect. Among them John Brooks, of Medford, Massachusetts, came to be well known.

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[4] History of Medicine in the United States, by F. R. Packard, M.D., p. 233 *et seq.*

He was born in 1752, the year before John Warren, and began his career by going to school with the boy who was known later as Count Rumford. A year or two before the war he began to practise, but dropped that work with the outbreak of fighting and served through to the end as a combatant. He was at Saratoga as colonel and at Monmouth as adjutant-general. Then, with the return of peace, he took up his profession again, making a name for himself at that. He found time for politics, was conspicuous in State affairs, was governor in 1816, and distinguished in office. Altogether it was a notable life and would well repay the telling.

Besides, one must record the early volunteers, Aspinwall, Cumming, Dexter, Downer, Minot, Prescott, Welch, with Eustis, Thacher, Homans, and dozens of lesser note.

It was in that first year of the war that one saw Massachusetts folk rise almost to a man, carrying the doctors with them; but later, when time brought weariness, defeat, and hardship, recruits were less eager, and with the removal of the armies to other scenes the doctors, like the others, came slowly to the front.

Josiah Bartlett was Massachusetts born, in 1729, and practised medicine in New Hampshire. He was a colonel of militia, then a member of the Continental Congress, and signed the Declaration of Independence. After the war he was a Superior Court justice and governor of the State.

Another New Hampshire doctor, Matthew Thornton, an Irishman born, was also a signer of the Declaration.

Jonathan Arnold, of Rhode Island, was a doctor, Congressman, and Senator. Oliver Wolcott, of Connecticut, was a doctor, Congressman, signer of the Declaration, major-general, and governor.

Of New York doctors we hear little, and, with the exception of Morgan, William Shippen, Jr., and Rush, the same is true of Pennsylvania.

The last named will be heard from later. Suffice it now that he signed the Declaration of Independence and proved of service to the hospital department of the army.

From Virginia came Hugh Mercer, Washington's friend, a Scotchman, and in youth a follower of the young Pretender. He went into our war as a volunteer, and Congress made him a brigadier-general. He was killed at Princeton in 1777.

North Carolina furnished, among others, Nathaniel Alexander, a successful physician and army surgeon, and later governor of the State.

Probably the best-known physician from the South was David Ramsay, of South Carolina. He was also an historian and a statesman. And there are a great many others enumerated by Packard, from whom I have taken these few facts.

So we have made mention of these lesser men, noting them and their work. But there remain those others, high in rank, though unequal in fame, our first surgeons-general.

Benjamin Church, of Boston, was the first surgeon-general of the American army. The Continental Congress took in hand the question of medical organization about a month after the battle of Bunker Hill, and appointed a committee to consider the matter. At first the whole medical service was called the "Hospital," and it was only later in the war that this all-embracing term fell into disuse and the custom was adopted of separating the hospital service and the regimental service, the former ranking the latter. The head of the department was given the title "Director-General and Chief Physician," and his pay was four dollars a day.

The duties of the director-general were strictly limited. He was "to furnish medicines, bedding and all other necessaries, to pay for the same, superintend the whole, and make his report to, and receive orders from, the com-

mander-in-chief." He was also to appoint four surgeons, —one to every five thousand men,—and each of these surgeons was to have five mates, as we have heard. This number assumed an army of twenty thousand men.

It is hard to learn much about Church. The appointment seems to have been obvious and proper. He was a leader of the profession in Boston, reputed an ardent patriot, closely associated with the men who were directing affairs in Massachusetts, and was the natural medical head of an army composed largely of New England men.

At the time of Lexington he was about forty years old, in the full tide of an eminently successful practice; and Thacher tells us that "as a skilful and dexterous operator in surgery he was inferior to no one of his contemporaries in New England." Church was of a rather difficult age as respected his leanings in political matters, and that because he was placed midway between the older and the younger generations of the profession. Most of the older men were Tories, most of the younger men were Whigs, and as his connections and intimacies lay with both, he was drawn both ways. However, his patriotism seems never to have been doubted, for he was constantly outspoken and active on the side of the colonies, and was one of the very first to volunteer his services at the outbreak of hostilities. He was at the same time an influential member of the Provincial Congress, and in July, 1775, was appointed physician-in-chief of the Continental army.

For a few weeks Church seems to have proved himself an able and successful administrator of his department. Proper equipment for the hospitals was inaugurated, the regimental surgeons were inspected and instructed, and it seemed as though, in this case as in others, Massachusetts had produced the proper man; when, to the consternation of his friends and the indignation of the army, he was detected in correspondence with the enemy.

The facts in regard to this first famous charge of trea-

son will probably never be known. Indeed, Church seems to have been treated with remarkable clemency. The evidence against him rested upon an intercepted cipher letter to a friend in Boston, and when the cipher came to be translated it appeared, in some fashion, to bear out the author's claim that it was an innocent stratagem, designed to secure information from the enemy. At any rate, he was arrested, held under guard for some four months, and then tried by court-martial and convicted.[5]

[5] Washington wrote to the Congress,—

"I have now a painful, though a necessary duty to perform, respecting Dr. Church, Director General of the hospital. About a week ago Mr. Secretary Ward, of Providence, sent up to me one Wainwood, an inhabitant of Newport, with a letter directed to Major Cane in Boston in [occult] characters, which he said had been left with Wainwood some time ago, by a woman who was kept by Dr. Church. She had before pressed Wainwood to take her to Captain Wallace, Mr. Dudley the collector, or George Rowe, which he declined. She then gave him a letter with a strict charge to deliver it to either of those gentlemen. He, suspecting some improper correspondence, kept the letter, and some time after opened it, but not being able to read it, laid it up, where it remained until he received an obscure letter from the woman, expressing an anxiety after the original letter. He then communicated the whole matter to Mr. Ward, who sent him up with the papers to me. I immediately secured the woman, but for a long time she was proof against every threat and persuasion to discover the author. However, at length she was brought to a confession, and named Dr. Church. I then immediately secured him and all his papers. Upon his first examination, he readily acknowledged the letter; said it was designed for his brother Fleming, and, when deciphered, would be found to contain nothing criminal. He acknowledged his never having communicated the correspondence to any person here but the girl; and made many protestations of the purity of his intentions. Having found a person capable of deciphering the letter, I, in the mean time, had all his papers searched, but found nothing criminal among them. But it appeared on inquiry that a confidant had been among the papers before my messenger arrived. I then called the general officers together for their advice—the result of which you will find enclosed. The deciphered letter is also enclosed. The army and country are exceedingly irritated; and, upon a free discussion of the nature, circumstances and consequence of this matter, it has been unanimously agreed to lay it before the honorable Congress for their special advice and direction."

He seems to have taken his trial with remarkable fortitude, and his defence of his conduct proved a strong and almost convincing document.[6] However, he was convicted, kept in prison for a year, then given his freedom, allowed to sail with his family for the West Indies, and was heard of no more; lost at sea, most probably. That was the end of him, and he seems to have left a minimum of hard feeling behind him. His expulsion from the Assembly, which occurred immediately after the court-martial, exhausted that sentiment. Warren and Thacher, his associates, refer casually to him; Washington groaned in spirit, found a man to take his place, and the world moved on.

It was a far different treason and catastrophe from that of the contemptible Arnold or the pathetic André.

The man who took Church's place was perhaps the most eminent American physician of his generation: John Morgan, of Philadelphia, of whom we have heard before.

John Morgan, the second director-general and chief physician of the American army, was not a surgeon. That has always been an interesting fact. He was a professor of medicine in the Philadelphia school,—a fine, well-equipped, "all around" man; but even he did not succeed in those grievous times. He struggled intelligently, laboriously, and faithfully for the good of the service, under the most trying circumstances and against impossible conditions, for two years; he failed to satisfy the politicians; he was dismissed the service; he prevailed upon his representatives in Congress to have his conduct investigated; he was most honorably acquitted of all blame, but was not reinstated; he retired to private life, a saddened man; and he died eight years after the close of the war.

It is a tale that does no special credit to our ancestors.

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[6] Massachusetts Historical Society's Collections, first series, vol. i. p. 84.

The types of men of many callings and the qualities of their service in the Revolution and in later American wars are in striking contrast. In that ancient struggle all that was best in the country came at once to the front. While in 1774 and the immediately succeeding years the highest talent of the country was in Congress passing those remarkable resolutions which have become national classics and drafting the famous Declaration, later years saw the best of those same men active in the field or returned to the more practical and immediate service of their States, until the Congress shrunk into a relatively inefficient and incompetent body. So the most eminent physicians, even those of advanced age, were to be found in field and hospital as the war progressed. In later wars, as we know, the young manhood of the country mostly entered the service, while mature and elderly men remained in the pursuits of civil life; but in the medical service of the Revolution we find active in the field the few eminent physicians of the country, and civil practice left to the lukewarm and less efficient.

Morgan was the most prominent medical teacher in the land, and we find him at the front. There also were William Shippen, Jr., and Bard and Jones. The medical schools were practically closed—that in New York perforce—and medical education nearly ceased throughout the land. Rarely in modern history, except, perhaps, in the Southern States during the Civil War, have the pursuits of peace been so universally abandoned.

Morgan was appointed director-general in October, 1775, and entered at once and vigorously upon his duties. The advantage of his experience in the old French War was apparent, for the service began to show improvement in morale and personnel. Especially he saw to it that medical officers passed rigid examinations before being commissioned; his oversight was constant and for a time

efficient. All this was possible enough while the headquarters was stationary, the main army in camp before Boston, and the main body of the enemy inactive; but with a change in these conditions came discouragement and partial failure. It was possible to secure some much-needed supplies for the army in New England, it was possible to supervise and discipline his subordinates, it was possible even to discharge the inefficient; but when it came to operating over widely separated regions, when disaster overtook American arms, when desertions, discontent, insubordination, and even treachery appeared in the ranks, and the distant, almost independent, corps were beyond vision and control; when supplies failed, when the sick-list increased, when winter came and gloom overspread the land, then, indeed, there was found but one man, steadfast, patient, imperturbable,—the Commander-in-Chief; and Morgan was not a Washington.

Besides constant, untiring, but nearly ineffective efforts to obtain supplies from the Congress, Morgan succeeded in securing the proper ranking of hospital and regimental surgeons, making the latter subordinate to the former. For this reason the aggrieved men entertained for him a constant hatred which led eventually to open hostility and his dismissal. Meantime he did his best to allay their indignation; he treated them with constant fairness, and sought by conference and discussion to adjust the differences.

So early as July 17, 1776, before the retreat from Long Island, he agreed with them upon a code of rules, and transmitted the copy to the Congress; but that body failed to act upon it. Instead there was adopted a system which Morgan had proposed and submitted some months previously. The later convention was intended to supersede this, but the disregard of it by the Congress roused again the indignation of the surgeons, and Morgan was believed to have played them false. The subject-matter

of those newly adopted rules we have recorded. Against such ranking and pay a bitter protest continued.

So much for the prime cause of Morgan's unpopularity. There were other causes; and the great poverty of the country, the wretched transportation, and the follies of the Congress were made use of by his enemies.

Samuel Stringer, of the Northern army, was a bumptious person and a thorn in the flesh. His title was "Director of the Hospital, and Chief Physician and Surgeon for the Army in the Northern Department." The evidence at hand goes to show that he was inefficient; but his worst offence was that he disregarded his superior, Morgan, and communicated directly with the Congress, apparently with its approbation.

The story of our Revolution is so full of squabbles, jealousies, insubordination, fickleness, and incompetence that one must keep steadfastly in mind the really great men who initiated it and carried it through, and the steadfast resolve of the faithful masses, if one would appreciate the tremendous significance of it all. Never for one moment did the people lose confidence in Washington, but often they were impatient and indignant with their feeble Congress and with the creatures which the Congress set up and pulled down.

Now, this Stringer was an example of such. An amiable and competent doctor in private life, a friend of Schuyler, and respected in his community, he was given a post of great responsibility and failed in it. Probably the fault was not so much his as that of the men who put him there. He was too self-complacent for hard times and harsh treatment; he took offence, grew peevish, neglected his plain duty, disregarded orders, and was dismissed.

While he was still in the service, Morgan was good to him; he overlooked the insolence of a subordinate's reports sent over his head to the Congress; he helped the man out

with supplies, so far as might be, and backed up his demands when they were sent in. Indeed, both men kept up a very constant outcry for help and met with the usual lack of response.

When reading of this disregard by the Congress, one must remember that all officers in the field, from Washington down, met with the same treatment, and one is indignant, not that demands were not met, but that no replies were vouchsafed. It seems, however, that Stringer failed even to take advantage of the scant supplies at his command, and spent much valuable time in vain upbraidings and scoldings.

All this was a great trial to Morgan, who was earnestly doing his best for all the armies. He appealed constantly to the Congress to make some definite settlement of the question of his authority,—the true underlying cause of most of the inefficiency in the North; and at last, late in 1776, that body bestirred itself so far as to appoint a committee of investigation.

Early in January, 1777, the committee reported, with the result that Stringer was dismissed; but, to the astonishment and indignation of the army, Morgan was dismissed with him, and no explanations were given.

Even before that the unhappy Morgan had a taste of the ingratitude of his superiors. In the preceding October, soon after the evacuation of New York, and while the scattered American troops were attempting to rally from the great disaster of Long Island, and were fighting that series of discouraging engagements which culminated in the retreat through New Jersey, Morgan, to his intense chagrin, was ordered to confine his services to the troops operating east of the Hudson River, and his old friend and associate, William Shippen, Jr., was appointed chief physician of the armies to the west. This meant much more than appears at first. East of the Hudson there were left few troops. The duty consisted chiefly in look-

ing after scattered garrisons and hospitals. We except the Northern army under Schuyler; but there, as we know, Morgan's authority was in dispute. It was all a most unhappy, wretched business; and not least unfortunate was the resulting estrangement which separated Morgan and Shippen for many years.

Shippen entered upon his duties with the main Western army that same October, and the following January, on Morgan's dismissal, was made chief physician to all the forces, including those of the North.

Out of all this trouble came one good thing: the most interesting and valuable medical document relating to the Revolution that we have. Morgan demanded a court of inquiry, and his published "Vindication," written for the court, is full of information on the conduct of the medical department.

The surgeons of the General Hospital, with whom Morgan was extremely popular, were eagerly outspoken in his support; but the regimental surgeons, far more numerous and with what we should call a strong political "pull," succeeded in accomplishing his overthrow.

It is hard to see now, in review of the evidence, on what ground Morgan could justly have been dismissed. It was charged against him that he was partisan, that he discriminated against the regimental surgeons and regimental hospitals, that he failed to distribute properly the scanty supplies in hand, and, finally and most unwarrantably, that he appropriated supplies for the benefit of his own pocket. How much or how little of all this was believed by the Congress we cannot tell; but the most charitable view of the action of that body is that it was convinced of grave dissensions in the department, due to the chief's unpopularity, and that it removed him for the greater good of the service.

However that may be, on Morgan's demand, a committee, acting as a court of inquiry, was appointed after more

than two years, and on June 12, 1779, returned a report honorably acquitting him of all the charges against him.[7]

After his dismissal, in 1777, nothing remained for Morgan but to retire to private life and practice. Indeed, the hardships of campaigning had proved almost too much for him, and he never recovered his health or took any especially active part in affairs. After the war he did some little medical teaching, and even became reconciled to his old friend and later enemy, Shippen, against whom his anger seems to have been quite unjustifiable. But he lived only until 1789, and died comparatively young—fifty-four years old—and a poor man at that.

It is an interesting character; not great, certainly, as Washington was great; but earnest, highly intelligent, far-seeing, laborious, zealous, faithful. Sensitive, too, which he could ill afford to be. Nearly heart-broken by

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[7] "Congress took into consideration the report of the committee to whom was referred the Memorial of Dr. John Morgan, late Director-General and Physician-in-Chief in the General Hospital of the United States, and thereupon came to the following resolution:

"*Whereas,* by the report of the Medical Committee confirmed by Congress on the 9th of August, 1777, it appears that Dr. John Morgan, late Director-General and Chief Physician of the General Hospital of the United States, had been removed from office on the 9th of January, 1777, by reason of the general complaint of persons of all ranks in the army, and the critical state of affairs at that time; and that the said Dr. John Morgan, requesting inquiry into his conduct, it was thought proper that a Committee of Congress should be appointed for that purpose.

"*And Whereas,* on the 18th of September last, such a committee was appointed, before whom the said Dr. John Morgan hath, in the most satisfactory manner, vindicated his conduct in every respect as Director-General and Physician-in-Chief, upon the testimony of the Commander-in-Chief, General Officers, officers in the General Hospital Department, and other officers in the army, showing that the said Director-General did conduct himself ably and faithfully in the discharge of the duties of his office; Therefore,

"*Resolved,* That Congress are satisfied with the conduct of Dr. John Morgan, while acting as Director-General and Physician-in-Chief in the General Hospital of the United States, and that this resolution be published."

ingratitude, rendered somewhat peevish, perhaps, by trial and disappointment, as his "Vindication" shows, but always loyal to the cause and to his chief. His is one of the best names in our annals,—a name too little known to-day; almost ignored by history.

William Shippen, Jr., was chief physician to the army for four years,—from January, 1777, to January, 1781. Next to Morgan and Rush, he was probably the most distinguished American physician of his generation. He died at the age of seventy-two, in 1808, within the memory of our grandfathers, and for more than forty-five years was constantly before the eyes of Philadelphians. He must have been a very human man: able and diligent, with much of what we call magnetism and a very distinct individuality. Devoutly religious, as were most physicians of that time, his old age was rendered desolate by the death of an only son whom he idolized.

But we are now concerned with him in war times. He was forty-one years old when Congress raised him to the highest medical office. He had already abandoned his practice for army service, and on his promotion to succeed Morgan he entered zealously upon his duties. We know how weary and difficult was the task, but Shippen succeeded where his predecessor had failed. Various causes contributed to this success. He was a more practical person in many ways; less thin-skinned, more ready to give and take, more facile in the affairs of daily life. Besides, some of the more difficult questions had already been answered. The organization was, in rough shape, complete. The matter of ranking was settled, that of supplies was less desperately hopeless, and his position of authority in affairs medical was absolutely unquestioned throughout the country. Indeed, he seems to have been less grievously harassed and pressed for time than Morgan had been; for, except during the winter of 1776 and 1777, he managed to continue his anatomical lectures in

Philadelphia through the war. Although midwifery was his favorite subject and that for which he was most famous, he necessarily abandoned all such work and teaching, giving himself to matters concerned with the saving of life rather than to the advent of the coming generation.

The great step in advance which accompanied Shippen's promotion was the wise provision by the Congress for a proper geographical division of the army into departments and a selection of competent medical officers for their direction.

For the Northern Department, Jonathan Potts was made deputy director-general, with John Bartlett physician and surgeon-general, Malachi Treat physician-general, and Samuel Forgue surgeon-general. In the Eastern Department (east of the Hudson River), Isaac Foster was deputy director-general, William Burnett physician and surgeon-general, Ammi Ruhamah Cutter physician-general, and Philip Turner surgeon-general. In the Middle Department (the most important), John Cochran was physician and surgeon-general (serving directly under Shippen himself), Walter Jones physician-general, and Benjamin Rush surgeon-general. These various offices, which sound strangely to us, with our simplified modern system, were ably filled, mostly, by their incumbents, and serious friction and insubordination soon disappeared from the service. Nearly all of those excellent officers held their positions throughout the war, and, their efficiency increasing with experience, the various departments were found to be in a creditable condition on the cessation of hostilities. In January, 1781, some months before the surrender of Cornwallis, Shippen retired from the service and was succeeded by John Cochran, who held his new position until the peace. A Pennsylvanian, like his two predecessors, he was a very accomplished and experienced surgeon and the personal nominee of General Washington.

One finds little to record of the personal service of Shippen during his term. The delegation of duties to their proper officers relieved him of much of the detail that had so worn upon Morgan, and he was busied in receiving reports, raising and forwarding supplies, establishing hospitals, finding accommodations for his patients, and fighting epidemics.

The details of all these matters are admirably recorded by Packard, who has well drained our scanty sources of information. The contemporary writings of the period deal but little with such questions. Probably the best pictures of this feature of the Revolution are Thacher's entertaining "Military Journal," the Biography of John Warren, James Tilton's "Observations on Military Hospitals," Toner's "Medical Men of the Revolution," an article by Mr. Jordan in the *Pennsylvania Magazine of History and Biography* for July, 1896, and "British and Colonial Army Surgeons," an address by George Lincoln Goodale, 1899.

Of the various matters which most concerned our medical officers, the hospital accommodations, the hospital mortality, and smallpox call for a brief notice.

We have seen how hospitals were established at Cambridge in the first month of the war, and we know that hospitals, such as they were, continued to find place in various locations: temporarily at the shifting front, more permanently in towns conveniently distant from active operations.

One of the most interesting of those large permanent hospitals was at Albany, described by Thacher after the surrender of Burgoyne at Saratoga in 1777.[8] It was in the department of Jonathan Potts, and was crowded with Americans and with British and Hessian wounded whose own surgeons acted for them. Thacher says, "I have

[8] Military Journal, p. 134.

been present at some of their capital operations and remarked that the English surgeons perform with skill and dexterity, but the Germans, with a few exceptions, do no credit to their profession: some of them are the most uncouth and clumsy operators I ever witnessed, and appear to be destitute of all sympathy and tenderness towards the suffering patient. Not less than one thousand wounded and sick are now in this city. . . . We have about thirty surgeons and mates; and all are constantly employed. . . . Amputating limbs, trepanning fractured skulls, and dressing the most formidable wounds, have familiarized my mind to scenes of woe. A military hospital is peculiarly calculated to afford examples for profitable contemplation and to interest our sympathy and commiseration."

So the good fellow goes on for two pages. He was then young, of small experience, and entirely unfamiliar with the scenes of a similar character which, even in civil practice, the accident service of our great modern hospitals affords to every student of medicine.

Another very interesting description of a large military hospital offering a variety of practice is given by James Tilton, who was in charge of the American wounded at Williamsburg after the surrender of Cornwallis. The French troops remained in the place and their surgeons attended them. His account of French methods is in part very pleasant, in marked contrast with the horrible conditions which existed in the contemporary hospitals in Paris.

"Their patients appear very neat and clean, above all examples I had ever seen. Each patient was accommodated with everything necessary, even to a night cap. Nevertheless they were not more successful than we were. Even their wounded, with all the boasted dexterity of the French to aid them, were no more fortunate than ours. I was led to attribute their failure principally to two

causes. For ease and convenience they had contrived a common *necessary* for their whole hospital, the college, a large building, three stories high, by erecting a half hexagon, of common boards, reaching from the roof, down to a pit in the earth. From this perpendicular conduit, doors opened upon each floor of the hospital; and all manner of filth and excrementatious matters were dropped and thrown down this common sewer into the pit below. This sink of nastiness perfumed the whole house very sensibly, and without doubt, vitiated all the air within the wards."

The second reason assigned for their failures was that they prescribed no bark or other tonics and stimulants.

There were many other hospitals established at various points and at various periods of the war. In 1776 there were those at Peekskill and Fishkill on the Hudson, crowded with wounded soldiers and zealously served by the young surgeons. In Connecticut there was a large hospital at Stamford; later there was one in Boston; but the most frequented and notable institutions were those near the seat of war in New Jersey and Pennsylvania,—at Amboy, Philadelphia, Elizabethtown, Fort Lee, New Brunswick, Trenton, Newark, Princeton, Bethlehem, Lititz, and Lancaster. Perhaps the most notorious of these was the one at Bethlehem, which was established in December, 1776. It was organized by Shippen and Warren, who saw an enormous service in its wards.

The severe campaign and the constant fighting of that autumn and winter had grievously depleted the American ranks, and from many quarters the disabled were gathered and crowded in upon this haven. Their condition after the long winter journey was most wretched; the means of transportation were primitive, the roads shocking, and the stores almost nil. During the last three weeks of the year sixty-two men died in the hospital from the effects of exposure in transit, not from recent wounds;

and, to add to the horrors, smallpox broke out during the early months. As a result of this the hospital was broken up and the patients transferred to Philadelphia in the spring. Then came the summer campaign of 1777 and the evacuation of Philadelphia by the Americans. Our veteran troops remained in that vicinity, as we know, keeping the British constantly on the alert, and their operations necessitated the re-establishment of the Bethlehem Hospital. Lafayette, wounded at Brandywine, was a distinguished patient there at this time. Towards the end of the year, in spite of the exertions of Rush, who had been assigned to this post, the hospital, which consisted of halls, churches, and hastily constructed sheds, became frightfully overcrowded and filthy beyond modern conception. Many patients had to remain, after their discharge, for lack of clothes to march in, and fevers carried off nearly five hundred men in the course of a few weeks.[9]

The tale of horror drags along, but even in modern days it has a strangely familiar sound. It came to an end with the winter, and in the spring of 1778 the men moved on.

That is a fair sample of the way our crippled ancestors fared. There were other hospitals and other men, but the tale is not a pleasant one and its sameness bore no fruit.

In addition to wounds and septic fevers, smallpox was constantly present in some portion or other of the American armies, but the fierceness of this scourge had been

[9] Packard quotes one of the surgeons, William Smith, who states "That he had known from four to five patients die on the same straw before it was changed, and that many of them had been admitted only for slight disorders. Of the eleven junior surgeons and mates, ten took the infection, most of them dangerously so, and one, Dr. Joseph Harrison, had died, and of the three hospital stewards, two died and the third narrowly escaped. Owing to the crowded wards, and the want of almost every necessary, it was impossible to prevent an infection, and that the sufferings of the sick could not be attributed to negligence or inattention of the surgeons and physicians."

greatly mitigated by the introduction of inoculation, and that operation had become well established throughout the country. Private hospitals for the practice had been placed near all the larger cities and great numbers of persons had benefited by it; still, it was not so universal as vaccination has since become, and when a regiment or army corps was attacked by smallpox the death-rate ran high.

Fortunately, from Washington down, all intelligent men had come to appreciate the value of inoculation, and the difficulty of free intercommunication prevented irresponsible and hysterical persons from making impossible the application of that remedy to the exposed troops.

The disease resulting from inoculation was by no means so troublesome and distressing as we are wont to think it. Thacher tells us of an early epidemic of smallpox in the camp at Cambridge before Bunker Hill. At that time Church had issued no general inoculation orders, but Thacher thought it wise to undergo the operation, as he was constantly in the hospital, and says, "I was accordingly inoculated by my friend Dr. John Homans, and have passed through the disease in the most favorable manner, not suffering one day's confinement."

The next year (1776) Washington became so alarmed at the prospect of a visitation of smallpox that he established inoculation hospitals at Morristown and had the whole army of the Jerseys inoculated. This far-seeing and energetic action proved of infinite benefit to the troops, in morale as well as in health. The death-rate from inoculation, as then practised under such teachers as Morgan and Rush, was practically nil, the confidence of the troops was confirmed, and the numbers and efficiency of those on duty were reasonably assured so far as any danger from smallpox was concerned. Indeed, during the later years of the war those epidemics, which had been so dreaded at first, no longer prevailed so as seriously to be reckoned with.

Enough has been said to illustrate the medical men of the Revolution and the sort of experiences through which they passed. In the department of medicine, as in others, a gradual improvement took place as the war advanced, especially after the French alliance. The troops and the staff together grew old in the service, and with experience came a simplified routine and more facile and hardy patients.

The Commander-in-Chief also had always an earnest, kindly care for the comfort of his troops; his steady oversight in this department, as in the others, brought him into close touch with all ranks of the service; and his early, always-increasing popularity is pleasantly witnessed by our voluminous Thacher. That faithful surgeon was stationed at Peekskill the year after Saratoga, and with his eulogy of his general let us close this brief sketch of Revolutionary medicine:

"His Excellency, the Commander-in-Chief, made a visit to our hospital; his arrival was scarcely announced, before he presented himself at our doors.

"Dr. Williams and myself had the honor to wait on this great and truly good man, through the different wards, and to reply to his inquiries relative to the condition of our patients. He appeared to take a deep interest in the situation of the sick and wounded soldiers, and inquired particularly as to their treatment and comfortable accommodations. Not being apprised of his intended visit in time to make preparations for his reception, we were not entirely free from embarrassment, but we had the inexpressible satisfaction of receiving his Excellency's approbation of our conduct, as respects the duties of our department.

"The personal appearance of our Commander-in-Chief is that of a perfect gentleman and accomplished warrior.

"He is remarkably tall, full six feet, erect and well proportioned.

"The strength and proportions of his joints and muscles appear to be commensurate with the pre-eminent powers of his mind. The serenity of his countenance, and majestic gracefulness of his deportment, impart a strong impression of that dignity and grandeur which are his peculiar characteristics, and no one can stand in his presence without feeling the ascendency of his mind, and associating with his countenance the idea of wisdom, philanthropy, magnanimity, and patriotism.

"There is a fine symmetry in the features of his face, indicative of a benign and dignified spirit. His nose is straight, his eyes inclined to blue. He wears his hair in a becoming cue, and from his forehead it is turned back and powdered in a manner which adds to the military air of his appearance. He displays a native gravity, but devoid of all appearance of ostentation. His uniform dress is a blue coat, with two brilliant epaulettes, buff colored under-clothes, and a three cornered hat, with black cockade. He is constantly equipped with an elegant small sword, boots and spurs, in readiness to mount his noble charger.

"There is not in the present age, perhaps, another man so eminently qualified to discharge the arduous duties of the exalted station he is called to sustain, amidst difficulties which to others would appear insurmountable, nor could any man have more at command the veneration and regard of the officers and soldiers of our army, even after defeat and misfortune.

"This is the illustrious chief, whom a kind Providence has decreed as the instrument to conduct our country to peace and independence."

CHAPTER VI.

THE EIGHTEENTH CENTURY. BENJAMIN RUSH.

Like the rest of our national history, the tale of American medicine really begins with the ending of the Revolution. Before that there lived and worked here some very eminent men, and in medicine, as in other departments of American life, broad and deep foundations were laid; but they were foundations only, and not until the end of the eighteenth century did the true edifice begin to be reared. What goes before is largely prefatory. The colonies were provincial in science, dependent on Europe for almost all they knew, even for many of their strongest men; but with the rising of the nation our medicine rose, too; and although our young men continued to broaden themselves by study and travel in Europe, we came very early to develop a fine type of doctor, and American practice came to be well known and effective more than a hundred years ago.

The reasons for this are not far to seek. Unlike our literature, which long remained immature, largely because of its scanty cultivation, medicine was from the very first a favorite profession. In colonial days theology and law led it, but with political emancipation came religious emancipation, and that class in the community which had furnished recruits to the ranks of the clergy came, in a very few years, to drift largely towards medicine, its sister profession. And that class was the strongest and finest that our race has ever produced. Virile, enterprising, clean-blooded, near the soil, yet softened by cultivation, simple but shrewd, country born mostly, but with traditions of education and honest breeding, those ancestors

of ours took up life's work with a rush, a zest, a confidence, and a dogged resolution to succeed that brought the best of them to a standing and importance in the community such as our European confrères have not yet attained.

So the profession of medicine became a popular profession. In it was represented every family of importance throughout the land; indeed, in some families it became hereditary; and it would be interesting to trace the services which successive generations of the same name have rendered our art. There was no struggle with social prejudice such as was known in England: the abolition of titles and primogeniture ended all that. There were opportunity and a welcome for men of all ranks; the democracy of science became a very real thing. The hamlet knew no more important man than the village doctor; the nation knew few more eminent figures than Benjamin Rush.

In those early days our men of science were more men of affairs and were more intimately concerned with the wider interests of the people than they have since become. Life was more simple; even city communities were small; specialism was almost unknown. It was possible for an active teacher and practitioner to be distinguished also in literature and politics. It was possible even for country doctors to have some side occupation, and Rush advised such men to cultivate a farm. The ablest of the faculty pursued many branches of science; and so late as the middle of the last century we find a Bigelow practising medicine, teaching therapeutics, lecturing on technology, and writing rhymes in Greek.

So it was a very broad and humanizing life. The technical attainments of those men were not of the very highest, perhaps; but they knew life, they were securely placed among their own people, they were possessed of shrewd common sense and mother wit, they were very

real products of their time and place, and they developed a facility in practice and a popular success such as the world has rarely seen.

Almost coincident with the Revolution, which was so great an impulse in itself, there was the establishment of medical schools and hospitals, either immediately preceding or immediately following the war: the school and hospital in Philadelphia, the most important of all for a time; the school, especially, being the Mecca of American medicine for a great many years; and of all those who made that school great, no man more than Benjamin Rush stamped himself upon it and upon the teaching and practice of the whole country. Indeed, if one were obliged to name the one greatest figure in our medical annals, perhaps Rush would be the man. A recent English writer[1] has some pleasant words to say about his position and fame. He was called the American Sydenham by Isaac Lettsom, who said that he approached, if not exceeded, Sydenham in grandeur and compass of thought. American contemporary writers called him the Hippocrates of Pennsylvania, and Hack Tuke dubbed him the American Fothergill. Now, all these are very pleasant epithets and leave one to suppose that his genius was nearly universal. Although he shared the attributes of various great physicians, he was almost equally distinguished, both for good and ill, in fields other than medical, and some study of his life and character, which developed and flourished in the Revolutionary and subsequent years, is worth the attention of every thoughtful American.

Rush had warm friends and bitter enemies. He was an ardent and conspicuous patriot, yet at one time unfriendly to Washington; he was an accomplished physician, yet hated by many of the best of his colleagues; he

[1] Disciples of Æsculapius, by Sir Benjamin Ward Richardson, M.D.

was a faithful student of science, yet he tied himself to a system; he was an unselfish philanthropist, yet good men accused him of bringing ruin on his community; he was a great teacher, yet his disciples put him to shame by their extravagances; he sued his traducer for libel, but he gave the money to the poor.

He was a very human, very strenuous, many-sided man; optimistic for his country, but pessimistic towards the end; democratic at the first, but sceptical at the last; yet through it all, and constant, a faithful devotee of science and an unswerving believer in the revealed religion of his day.

Benjamin Rush was born on December 24, 1745, old style, and died on April 19, 1813,—a very momentous era. Of such a man it is interesting to note the personal appearance and characteristics.

One who remembered him writes of him as he was in the last five years of his life,[2]—

"He was above the middle height, very erect, rather slender, with small bones, and rather thin; his hands and wrists, feet and ankles being small and finely formed. His face was thin, nose aquiline; eyes beautifully set, large, blue, mild, and benevolent; forehead broad and high; head long in the transverse diameter and nearly bald from the crown forward; his hair clubbed behind and powdered. His face was of a fair and healthy complexion, not handsome or what is called fine looking, for his cheeks were fallen in, many of his front teeth lost, and age, with care, had left its wrinkles. His countenance in conversation was highly animated. His infrequent smile was highly gracious, but he hardly ever laughed. . . . When walking the street he uncovered to every one, poor or rich, who uncovered to him. His dress was very plain, generally of drab-colored cloth; he rode in

[2] Benjamin Rush, by Samuel Jackson, Philadelphia, 1860.

a plain vehicle with two wheels and one horse, the same little negro by his side, who had lived with him more than thirty years—master and man now grown old together.

"His bearing was very simple and artless, without a semblance of affectation, remarkable for kindness, cordiality and even condescension. . . . In conversation he was acknowledged by all to be pre-eminent, yet he did not appear to be at all self-complacent of his colloquial powers. He never interrupted another as the fashion now runs. . . . In fine he was the accomplished Christian gentleman, whose imposing first appearance subdued every mind and won every heart. . . . His portrait, painted by the eminent Sully, is a perfect likeness."

All this is a very pleasant picture. To be sure, it is drawn by an old man, jealously reminiscent of his youth and his early heroes, but others tell a similar story and make us see a striking type of man.

Rush was not of the Philadelphia gentry class, but of the best type of yeomen. For four generations his paternal ancestors had been Americans, the immigrant John Rush, one of Cromwell's old captains, having come out to Penn's colony in 1683 and settled in Byberry Township, thirteen miles northeast of Philadelphia. There he and his thrifty descendants lived and died as farmers; and there, on Poquestion Creek, in 1745, Benjamin Rush was born. It was the year of Louisburg and Prestonpans and Fontenoy; George II. was king and George Washington was still a boy.

It is interesting to know something of the boyhood of distinguished men, but of Rush's we know very little. He left the ancestral home when he was a child of six and saw it again only after sixty-two years. He had gone then into the neighborhood by chance, on business, and wrote a letter about it to his old friend, John Adams. It is a charming, characteristic letter, and describes scenes and

emotions through which most of us Americans have passed.[3]

"I was called lately to visit a patient in that neighborhood, and having with me my youngest son, I thought I would avail myself of the occasion to visit the farm on which I was born, and where my ancestors for several generations had lived and died. In approaching it, I was agitated in a manner I did not expect. The access was altered, but everything around was nearly the same as in the days of my boyhood, at which time I left it. The family received me kindly, and discovered a disposition to satisfy my curiosity and gratify my feelings. I asked permission to conduct my son upstairs, to see the room in which I drew my first breath and made my first unwelcome noise in the world, and where first began the affectionate cares of my beloved and excellent mother. I next asked for a large cedar tree which once stood before the door, planted by my father's hand. It had been converted into the pillars of the piazza. Filled with emotion, I embraced the one nearest me. I next inquired for the orchard planted by the same hand, and was conducted to an eminence behind the house, where I saw a number of apple trees which still bore fruit, to each of which I felt something like the affection of a brother. The building, which is of stone, bears marks of age and decay. On one of the stones, I discovered the letters J. R. Before the house flows a small but deep creek, abounding in panfish. The farm consists of ninety acres, in a highly cultivated state. The owner did not want to sell, but I begged if he ever should incline to dispose of it, to make me, or one of my surviving sons the first offer. While I sat in its common room, I looked at its walls, and thought how often they had been made vocal by my ancestors,—to conversations about wolves, bears, and snakes, in the first

[3] Watson's Annals of Philadelphia.

settlement; afterwards, about cows and calves colts and lambs; and at all times with prayers, and praises, and chapters read audibly from the Bible, for all who had inhabited it of my family, were pious people, chiefly of the sect of Quakers and Baptists. On my way home, I stopped to view a family graveyard, in which were buried three, and a part of four successive generations, all of whom were the descendants of Captain John Rush, who, with six sons and three daughters, followed William Penn to Pennsylvania, in 1683. He had been a captain of a troop of horse under Oliver Cromwell. . . . I retain as his relics, his sword, watch, and Bible-leaf, on which are inscribed in his own hand, his marriage, and children's births and names. My grandfather, James Rush, has his gravestone and inscription in the aforesaid graveyard. . . . While considering this repository of the dead, then holding my kindred dust, my thoughts ran wild, and my ancestors seemed to stand before me in their homespun dresses, and to say, 'What means this gentleman by thus intruding upon our repose?' and I seemed to say, 'Dear and venerable friends, be not disturbed. I am one who inherits your blood and name, and have come here to do homage to your Christian and moral virtues; and truly I have acquired nothing from the world, though raised in fame, which I so highly prize as the religious principles I inherited from you; and I possess nothing that I value so much as the innocence and purity of your character.'"

Rush, with his mother, brothers, and sisters, left the old place when his father died. He was but six years old. The family moved into Philadelphia, where Mrs. Rush opened a shop. She seems to have been an excellent, intelligent woman, for she did well by her children, most of whom made some success of life. At any rate, she had some rather superior connections, among them the Rev. Doctor Finley, who afterwards became President of Princeton College.

This accomplished gentleman was keeping a successful country academy when Rush was a boy, and three years after the death of his father the lad was taken by this uncle for his education. The academy was at Nottingham, in Southern Maryland, on the Patuxent, not far from the famous town of Brandywine, and about twenty-two miles southeast of modern Washington. It was a remote place in those days, inhabited by a simple people, and the fact that the academy became famous and developed a college president speaks volumes for the excellent Dr. Finley. Ramsay has some kindly words to say for Nottingham and the inhabitants thereof. To their influence and the life there among such primitive, hard-working, God-fearing folk he ascribes much of the good morals and good manners of young Rush,—all of which is doubtless very pretty and very fanciful. The facts seem to have been that the boy lived for five years in the country, had a good tutor, and stuck to his work. Indeed, in gleaning what few facts have been written about Rush by his eulogists, so much is found about his piety and other virtues that we should be inclined to set him down, with Weems's Washington, as an impossible prig, did we not know from his life and works that he was much as other men are.

Southern Maryland was a wild, uncouth, half-cleared, ill-cultivated region in those ancient days, inhabited by such an assemblage of blacks, poor whites, and down-at-heel sporting squires as followed the fortunes of Harry Warrington; and the famous academy, if it resembled at all the institutions of its time, was doubtless a very humble affair. But gold lace and silk stockings were rare enough anywhere in America one hundred and fifty years ago. The farms, the backwoods, and the struggling seaboard towns did their work and turned out men; and, after all, it is with men that we are now concerned.

Such early experiences—the farm life, the homely surroundings, the secluded school, and the kindly pedagogue

—did leave their permanent mark upon Rush. It was a simple nature, with an old-fashioned, straightforward outlook and a credulity which sometimes led him astray. He acquired a religious faith which stood by him, untroubled by experiences of travel and a wide acquaintance with men; and a naïveté which precluded a keen sense of humor. Many of us can remember the type of man—familiar enough to our youth—who was born in the eighteenth century, and can recall the curious Old-World outlook on life, — an outlook which took it all more seriously than we do to-day. The wit of one generation is mostly ashes to the next; the old jokes and sayings are flat and unprofitable to us, and we, in our turn, doubtless, shall bore our descendants.

The five years at Nottingham passed without special note; without the change and the long vacations of our later years. The boy studied hard, and acquired a grounding in the Greek and Latin classics which stood by him through life. His health may have suffered somewhat, for throughout his career he was not robust, and was said to have been of a phthisical tendency from his youth. At fourteen, then, he left school and was sent—by whom or in what fashion does not appear—to Princeton College,—a young institution but thirteen years established, and then under the presidency of Samuel Davies. The curriculum was a very elementary one; indeed, Rush had already covered most of the prescribed ground, for he saw but a year of college life, and was graduated a Bachelor of Arts at the following Commencement, in 1760, while he was still in his fifteenth year.

We are wont to call this present time an age of young men, but that early time before the Revolution was even more remarkable. In England were many youths of precocious political sagacity, such as the two Pitts, Fox, and others; in this country Washington was a leader of men at nineteen; and Hamilton, at thirty-two, was a construc-

tive statesman of the highest rank, a proved man and Secretary of the Treasury of the United States. In the same way our Rush began his life work at an age when most of us are High School boys, and he became a college professor at the age of twenty-four, as we shall see.

Up to the time of his leaving college Rush had planned no career. He had read Hippocrates, as he had read Cicero, and had loved nature no more than he had loved the rostrum of the debating club. Indeed, many of his friends urged him to study for the bar, and predicted for him a brilliant future as a lawyer, basing their opinion on his youthful prowess as an "orator."

Happily for Rush, while his mind was still undecided, his good uncle, Dr. Finley, intervened. He knew better than any others the aptitude and abilities of his old pupil, and it was by his strong advice that medicine became the boy's choice. So there we have Rush again, at the age of fifteen, settled at hard work on anatomy and chemistry, spreading plasters and compounding tinctures in the surgery of the distinguished Dr. Redman, of Philadelphia.

That well-known man—Redman—has had scant notice in these pages and deserves a word, at least, here; for he was widely respected in his day, and was famous, if for nothing else, as the preceptor of many men subsequently eminent, Rush among them.

John Redman was a Philadelphian by birth, and was thirty-eight years old when Rush became his pupil. He had practised in Bermuda and had studied in London and Edinburgh. He was an able practitioner, popular with all classes, was one of the earliest physicians to the Pennsylvania Hospital, and the first President of the College of Physicians. Like most doctors of the time, he believed in systems, and had attached himself to the teaching of Boerhaave; although, we are told, his practice was formed by the rules of Sydenham; all of which probably means that "he looked upon disease as a condition in which bodily

action or natural activities, being disturbed or unsettled, could take place only with difficulty," [4] and that he trusted to the healing power of nature and practised a simple therapeutics.

With Redman his more famous pupil lived and studied for six years, and they were not the least vital years in our medical history. Shippen and Morgan were coming home, the medical school was being founded, and a yellow fever epidemic was making itself remembered. Years afterwards Rush wrote about those times and the fever,—one of the latest of his manifold works.[5]

He was always a good, studious lad, and in his new tasks his punctuality was faultless, for during all those six years he was absent from his work but two days. Indeed, he did a variety of commendable things; he translated Hippocrates into English—a useful self-appointed undertaking—and he kept a commonplace book. That latter work and practice he followed through life. He developed the book into a sort of system of double entry; two little volumes ran side by side: one was a record of facts, the other a series of reflections and comments. That was an era of thoughtful composition and careful penmanship, not yet demoralized by the typewriter.

Those must have been pleasant and easy-going times in old Philadelphia, if we may take Rush's word. The winters were long and hard, which conduced to much heavy eating and tavern drinking, and folk seem to have enlivened the hours with four or five meals a day. There was little poverty; they all lived well. The long, hot summers made agreeable further drinks of great variety. "Their food was simple, and taken chiefly in solid form. The liquors used with it were punch, London porter, and

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[4] Roswell Park, An Epitome of the History of Medicine.

[5] An Inquiry into the Comparative States of Medicine in Philadelphia between the Years 1760 and 1766 and 1805.

sound old Madeira wine." Most of that, we are told, was changed later, and the Philadelphia of 1805 was distinguished for its frugality and sobriety.

Be all of which as it may, young Rush survived the early cheerful days; he clung to his task, delighted the heart of his master, learned all that there was to know, and, at the age of twenty-one, started out on his travels in search of a degree.

It was in the year 1766 that Rush went to Europe. The years between 1763 and 1775 were anxious and troublous ones in America; but, in spite of that, our youth were more and more resorting to the old countries, and Rush found compatriots in all the great cities. His first objective was Edinburgh and its famous medical school, then at the height of its reputation under the celebrated Cullen. With him the American became a great favorite, and Cullen saw there an opportunity to extend his influence in the New World. Of the Edinburgh life and work Rush had experience for two years.

He must have been a man of great promise and a pride to his teachers; for, besides his native genius, he had behind him six years of arduous medical work. He was graduated M.D. in 1768, and defended the thesis *De Concoctione ciborum in ventriculo.*

His various eulogists tell of a little side issue in his Edinburgh career. It seems that in 1766 the presidency of his *alma mater,* Princeton College, became vacant, and the trustees elected to the place Dr. Witherspoon, of Paisley, in Scotland. That reverend gentleman declined the honor when he was notified, thinking the new field too hopelessly insignificant and remote. Thereupon the trustees wrote Rush to call upon him and urge his acceptance. We must suppose the young man very eloquent or the old one very unstable, for this intercession had the desired effect. Possibly Dr. Witherspoon took the alumnus to be a fair type of the youths with whom he would have to

deal. At any rate, to America he went forthwith, to the joy of his new constituents; he presided over the College with discretion and zeal, he became a patriot when patriotism was the fashion, and he came to sit with his young friend Rush in the new Continental Congress, where they both signed the famous Declaration.

Even with his two years in Edinburgh, Rush was still unsatisfied. That same summer he journeyed to London and spent several months going about the great hospitals there, attending lectures and doing other such post-graduate work as came to hand.

Franklin was then in London. Through his introduction Rush met most of the well-known men of the day, and by his persuasions he was induced to go to Paris with funds provided by the kindly philosopher himself, his own purse having run dry. There he polished up his French and saw such simple wonders as that gay city had to show to poor American students.

In such fashion passed the first year after graduation; but at last his impatience could endure no more, and he returned to Philadelphia in August, 1769.

The little experience in Paris and the long voyage home were the end of recreation for Rush. For the remainder of his life he never rested. He belonged to the class of men who do things, and for such there is no rest. He hungered for work; the more he did the more he saw to do. He once said that he dreaded death only because it meant the end of practising medicine. He had that kind of genius which succeeds because it is unceasing, methodical, thorough; never dilatory, never agitated, but prompt, clear-headed, final. It was a broad but not a deep mind. A multitude of tasks was done, and well done; the bearings and perspectives were clear and the reasoning acute; but the real meaning of phenomena was sometimes obscure even to Rush, and his one weakness lay in assuming what still remained to be proved.

Chemistry had been his special pursuit during much of his time in Europe. It interested him, and he knew from his correspondents at home that in that branch there was an opening in the new medical school. We must not suppose that all this time he had remained obscure or unknown. The favorite pupil of Redman and Cullen had professional friends in plenty: Bond, Kuhn, Shippen, and Morgan had marked him for their own. He returned to Philadelphia with a reputation ready made in that town where every man knew every other, and he had hardly landed when he was elected to the chair of Chemistry in the College of Philadelphia.

Rush was not a great chemist, though careful and painstaking; but he was a great teacher. He had that indescribable something which makes men listen and think. He had things to say which were worth hearing, and he said them well. It was not the ardor of the prophet, but the enthusiasm of the cultivated articulate pleader. He took infinite pains, he was never slovenly; his work was never extempore, but was carefully prepared. Lectures are dreary things with most men,—poor methods of imparting exact knowledge,—but Rush made them very live indeed. The students were never bored because their teacher was never bored. Every year he revised carefully what he had to say and said it with new force. It was all so well done, too. The manner was worthy of the matter. His voice was mellow, far-reaching, delightful. His diction was perfect. And it was all so human. Read those published talks of his and compare them with the printed words of others: with good old Peter Middleton's, if one may be so unkind. Rush never indulged in pompous phrasing, in abstract generalities, in jingling the spheres, in dreary citations, in sonorous commonplaces, in melancholy mouthings. He talked about very real things, and men and women. He was alert, pithy, pointed. He discoursed of theories, but he illustrated with facts.

He quoted the classics, but he urged them home. He clung to the earth, but he pointed forward. The best of his students were captivated; even the dull could follow.

His were called great gifts, but they were not gifts. He was born with that subtile thing called *charm,* but he grew to eloquence with practice, with patience, with hard, constant work, with enthusiasm. And he inspired his hearers. Perhaps that was the great thing he did in the world. His preaching and his practice were carried to the ends of the land by his thousands of pupils; but they carried with them, too, new ideals of work, of the dignity of their profession, of the privileges of their calling, of the value of human life, of the meaning of science, of the significance of labor, of the pride in achievement, of the joy in true progress.

Such were some of the things that came out of the man, and if he had done nothing else we should look back on him as the first great American teacher.

We hear much solemn talk nowadays about the decline of the ethical standard in medicine. Careful inquiry fails to substantiate the claim, and the story of so admirable a man as Rush leads one to think that even he sometimes subordinated science to business.

After being established in the professor's chair he proceeded to seek patients, and in this he was not above methods which the strict among us to-day would call advertising. It was a trick of the times, and he was in excellent company. He was a clever man and wrote for the public; he was an agreeable man and attracted friends. As a youth he had written biographical anecdotes of the Rev. Gilbert Tennent, and he now devoted his considerable leisure to urging the abolition of slavery in America. Such exertions were most commendable and brought him the warm friendship of Quakers in Philadelphia. One cannot call biographical notes and essays on popular topics improper methods of advertising—if so, many skirts are

unclean; but he took to leading a mild sort of temperance crusade and gave public lectures on hygiene. Doubtless none but a purist would object to such methods of drawing attention to his own accomplishments, but there are many such purists in these days. However, as we have said, he but followed the fashion of his time; and doubtless some of our modern doctors would be broader and more useful men if they would exert themselves in season to preach outside of the prescribed lines.

One of Rush's earliest and most interesting publications was an address delivered before the Philosophical Society in 1774: "An Inquiry into the Natural History of Medicine among the Indians of North America, with a Comparative View of their Diseases and Remedies with those of Civilized Nations." He was but twenty-nine years old at the time, but the address shows a breadth of thought, a maturity of experience, and a soundness of argument that would have done credit to his riper years. And it is surprisingly modern in its observations and conclusions. Its advocacy of fresh air, cold water, and exercise alone gives it value, to say nothing of the admirable collection of facts which is given about those uncontaminated red men of the early days.

There is but little to say, however, about the young practitioner Rush in the years between 1769 and 1775. He was busy, as we have seen, making himself known, acquiring a practice, and teaching; but the one great topic of the day—the rupture with England—was rapidly absorbing him, as it was all men with red blood in their veins; and, like Joseph Warren in Boston, he threw himself heart and soul into the patriot cause.

The importance of the part played by Rush in the War of the Revolution has probably been somewhat exaggerated by writers, and if he had afterwards remained undistinguished his patriotic services would mostly have been forgotten. Those services consisted in writing fre-

quent vigorous essays in defence of the position taken by his country, in public speaking to the same effect when occasion offered, in serving two years in Congress, in advocating and signing the Declaration of Independence, and in acting as one of Shippen's most efficient lieutenants for a year or more.

In regard to the Declaration, Rush was even more forward and radical than most of his friends. Before going to Congress he had been a member of the Provincial Conference of Pennsylvania, and, with James Smith, acted as a committee to consider the question whether it were best for Congress to declare independence. The committee, in a report evidently composed and written by Rush himself, strongly urged the measure, and their reasoning prevailed.[6]

This report of Rush anticipated much that was enunciated by the Declaration itself; so that when Congress came to carry out that important measure, he found himself voting practically on lines of his own making. As Jackson says, he did not sign the tremendous parchment because he was a member; he became a member that he might sign it.

In that same year (1776) Rush saw his first army service, being appointed surgeon-general for the Middle Department under Shippen, and the next year his appointment was changed to that of physician-general. Be it remembered that at the time of his holding the first position he was but thirty-one years old.

In that year, too, he took to himself a wife. As a younger man he had said, as so many had said before him, that he should never marry; that marriage unfitted a man for serious, sustained professional work. He was guilty of the often-quoted and rather silly remark, " Medi-

[6] Journal of the House of Representatives of Pennsylvania, vol. vii. p. 43.

cine is my wife; science is my mistress; books are my companions; my study is my grave."

However all that may have been, a daughter of his Congressional colleague, Richard Stockton, of New Jersey, was found worthy to divide with medicine and science a place in his affections, and that, too, when he had reached no very advanced age. They were married, had many children, and she survived him many years.

After two years of marriage and military life Rush resigned from the army, and in that action the candid historian must grieve to find that there is nothing to commend. The chapter is obscure and difficult, the reasons given inadequate and disappointing.

It was in February, 1778, the winter of Valley Forge, that Rush left the service. No darker time for the American arms had been known. Washington was keeping up the heart-breaking struggle against want, privation, mutiny, desertion, treacherous friends, open enemies in Congress, a neglected commissariat, an empty exchequer, a public confidence partly shaken by his apparent want of success compared with the unmerited triumph of Gates at Saratoga, when Rush took it upon himself, as it appears, to leave his post and join the notorious Conway cabal. It is only fair to say that this attitude towards his chief was not notably conspicuous; but Washington believed in his treachery, and even his eulogist, Jackson, makes but a feeble, half-hearted defence.

Two reasons, almost equally unconvincing, were assigned for Rush's resignation: "His sense of duty to the soldiers had led him to complain of wrongs in a certain department; second, there arose some coldness between him and the Commander-in-Chief." Just what useful purpose to the soldiers could be served by the resignation of their accomplished physician-general at the very time when they needed him most it is rather hard to see; and if officers are to leave their duties in times of trial and dis-

tress, on account of the coldness of the commanding general, it will go hard indeed with the service.

But one grows indignant with the man for his obtuseness. It is the unanimous verdict of fair-minded contemporaries that no intelligent man could come under the immediate influence of Washington in those trying years without acquiring an absolute confidence in his extraordinary ability, his forcefulness, his almost superhuman patience, and his compelling personality. Yet Rush seems to have been one of the rare exceptions. He was an honest man, he was a sincere patriot, he looked only to the good of the cause, he had nothing to gain, and yet he acted as he did.

The Conway cabal business is a painful episode. There is no doubt that a great many men in that feeble Congress of 1778 were bitterly jealous of Washington and professed to fear a standing army. The reputed success of Gates [7] gave such men the opportunity they were looking for, and the cry was started that the victorious general should be put at the head of the Continental armies. Aside from such men in Congress, there were others of note who looked on from a distance; and, being out of touch with the facts, were too harshly critical of the chief. John Adams himself, though a political friend of Washington, knew nothing of military affairs, and exclaimed, "I am weary with so much insipidity. I am sick of Fabian systems in all quarters." That light-headed, clever politician, Samuel Adams, was of the same mind; so, too, was the unfortunate Mifflin and the two dull, unprofitable Englishmen, Charles Lee and Gates. But the most active and unscrupulous worker of them all was a hot-headed Irish adventurer, Conway, who hated Washington and had his own ends to gain.

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[7] History has shown that, in the operations against Burgoyne, Gates had a very insignificant share.

The Congress had a stupid, fatuous notion of taking up with such foreign importations. Lee and Gates were obstinate, blustering, wrong-headed islanders, out of whom commanders could never have been made; very much of the sort which British reverses in South Africa have made so conspicuous in our own day, whom the world has come to look upon as typical. Conway was a feather-weight person out for mischief. Mifflin was an able, unscrupulous politician, with blighted military ambitions. Congress had been induced to favor Conway and Mifflin, and at this time both were general officers looking for preferment.

Strange as it seems to us now, Rush was an ardent champion of these two shallow persons; but, fortunately for him and all misguided men, the bubble burst before any great harm was done.

Underhand means were taken to damage Washington, and Rush seems to have been concerned in them. Anonymous letters were written, and the cry was circulated that under a Lee, a Gates, or a Conway the Southern army would be as successful as the Northern. A futile attempt was made to separate Lafayette from Washington by sending him to Canada, assisted by Conway, on a wild-goose chase, but this project failed. Then Wilkinson, one of Gates's staff, got drunk, on occasion, and repeated publicly the purport of a letter which Conway had written to Gates: "Heaven has been determined to save your country or a weak general and bad counsellors would have ruined it." The words were conveyed to Washington, who enclosed them to Conway. Thus exposed, the men concerned attempted to bluster it out; but, unfortunately for themselves, they had rashly submitted the correspondence to Congress, and that body, in an access of intelligence, investigated the whole matter under dispute, found itself obliged to balk the cabal, and, for very shame, came to the aid of Washington and his distressed army.

How active Rush may have been in all this exasperating business it is hard to say; but one anonymous letter to Patrick Henry, then Governor of Virginia, has been given to us by Marshall, and we are told that Washington always credited Rush with its authorship.[8]

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[8] "(COPY.)

"YORK TOWN, January 12, 1778.

"DEAR SIR,

"The common danger of our country first brought you and me together. I recollect with pleasure the influence of your conversation and eloquence upon the opinions of this country in the beginning of the present controversy. You first taught us to shake off our idolatrous attachment to royalty, and to oppose its encroachments upon our liberties with our very lives. By these means you saved us from ruin. The independence of America is the offspring of that liberal spirit of thinking, and acting, which followed the destruction of the spectres of kings and the mighty power of Great Britain.

"But, sir, we have only passed the Red Sea. A dreary wilderness is still before us, and unless a Moses or a Joshua are raised up in our behalf, we must perish before we reach the promised land. We have nothing to fear from our enemies on the way. General Howe, it is true, has taken Philadelphia; but he has only changed his prison. His dominions are bounded on all sides by his outsentries. America can only be undone by herself. She looks up to her councils and arms for protection; but alas! what are they? her representation in congress dwindled to only twenty-one members . . . her Adams . . . her Wilson . . . her Henry, are no more among them. Her councils weak . . . and partial remedies applied constantly for universal diseases. Her army . . . what is it? a major general belonging to it called it a few days ago in my hearing a *mob*. Discipline unknown or wholly neglected. The quarter master and commissary's departments filled with idleness, ignorance and peculation . . . our hospitals crowded with six thousand sick, but half provided with necessaries or accommodations, and more dying in them in one month, than perished in the field during the whole of the last campaign.

"The money depreciating without any effectual measures being taken to raise it . . . the country distracted with the don Quixotte attempts to regulate the prices of provisions, an *artificial* famine created by it, and a *real* one dreaded from it. The spirit of the people failing through a more intimate acquaintance with the causes of our misfortunes . . . many submitting daily to general Howe and more wishing to do it, only to avoid the calamities which threaten our country. But is our case desperate? By no means.

It is comfortable for one who admires the man to get past that episode in his career. The friendliest critic must call Rush's action an error in judgment; so with a mere error in judgment let him stand accused.

Before leaving the army, however, Rush emphasized his admirable medical services by publishing a pamphlet embodying his observations on the soldiers' diseases. The article was reprinted and, when distributed, became a standard authority of great value among Revolutionary surgeons.

After his rather ignominious exit from military service Rush returned to Philadelphia and a successful practice. Morgan was there before him after his unmerited dismissal by Congress, but Shippen still kept the field. From that year forward, then, we must regard Rush as teacher, writer, and practitioner,—a politician incidentally,—and learn in what way he came at last to be the great medical prophet of America.

Even during his busy and absorbing professional labors

We have wisdom, virtue, and strength *eno'* to save us if they could be called into action. The northern army has shown us what Americans are capable of doing with a GENERAL at their head. The spirit of the southern army is in no ways inferior to the spirit of the northern. A Gates . . . a Lee, or a Conway would, in a few weeks, render them an irresistible body of men. The last of the above officers has accepted of the new office of inspector general of our army, in order to reform abuses . . . but the remedy is only a palliative one. In one of his letters to a friend he says, 'a great and good God hath decreed America to be free . . . or the . . . and weak counsellors would have ruined her long ago . . . you may rest assured of *each* of the facts related in this letter. The author of it is one of your Philadelphia friends. A hint of his name, if found out by the hand writing, must not be mentioned to your most intimate friend. Even the letter *must* be thrown in the fire. But some of its contents ought to be made public in order to awaken, enlighten, and alarm our country. I rely upon your prudence, and am, dear sir, with my usual attachment to you, and to our beloved independence,

"Yours, sincerely.

"His excellency P. Henry."

Rush could not divorce himself entirely from the larger interests of his country. He was made a member of the Convention of Pennsylvania for the adoption of the Federal Constitution ten years after he had left the army, and during the last fourteen years of his life he was Treasurer of the United States Mint.

All through his life he was vigorously democratic in his feelings and expressions; indeed, he anticipated by many generations several great social reforms. He championed the emancipation of slaves, as we have seen; he was opposed to the death penalty, even for murder; he reprobated all forms of corporal punishment; he was an eloquent advocate of the higher education of women; and, long before Jacob Bigelow, he preached the disadvantages of the old-fashioned classical education and the value of English studies, the modern languages, and thorough technical training. He also believed in the possibility of the abolition of war and the substitution for it of some form of arbitration. What he proposed was the appointment of a cabinet officer who should be called The Secretary of State for Peace. This functionary should control the public schools and direct an educational crusade against militarism; he should abolish the militia and all military dress and titles. The folly of all the trappings of war should be drilled into the new generation, and he hoped that in the course of years war would become as obsolete and preposterous as the mediæval trial by battle. He does not seem to have gone so far as to propose an international peace tribunal, such as we have seen attempted in these latter days; he meant to begin in a humbler way at the foundation and, by educating a whole people to a hatred of war, to lead the other nations gradually and by force of example to a similar frame of mind and policy.

This agreeable plan he seems to have thought practical, but he evidently took very little stock in the elemental evolutionary forces which so largely control human affairs.

It was a pleasant Utopia and pleasantly planned, but as yet the world heard him with an impatient shrug.

So, too, with his antislavery propaganda. He foresaw truly the horrors and the future misery which "the system" had in store for his people, but he proposed no very practical solution of the problem. He wrote a pretty story,—"A Paradise of Slaves,"—telling of a dream in which he met former slaves translated to a region of perfect happiness, where many of them related to him their experiences on earth. These tales were obviously founded on well-known facts, and the many horrors described are said to have greatly impressed his readers.

Such were some of the thoughts, political and social, which occupied Rush's mind when he returned to practice in Philadelphia; and the kindly philosophizings were often and fearlessly expressed even in the midst of his more engrossing work.

Medical teaching in Philadelphia had been discontinued while the city was occupied by the British, but about the time of Rush's return lectures were again taken up, and in the autumn of 1778 the Medical School opened with a class of sixty. For another year the work went on, and then, in November, 1779, the College charter was revoked, as has been recorded, and the University of the State of Pennsylvania was established. Rush agreed with his colleagues as to the injustice which had been done, but in 1781 he joined Shippen at the University School and gave the lectures on chemistry. Then in 1783 he came back to the chair of Chemistry in the restored College, where he remained until 1789, when, upon the death of Morgan,[9] he

[9] To the student of medical biography it is interesting to remember that, on taking the chair as Morgan's successor, Rush devoted most of his introductory lecture to a memorial of his predecessor. This memoir is published in the Philadelphia Medical and Physical Journal, vol. i., and is almost our only source of information regarding the life of the distinguished founder of the Philadelphia School.

succeeded him as Professor of the Theory and Practice of Medicine. Finally, in 1791, when the two schools were united in the University of Pennsylvania, he was appointed to the chair of The Institutes of Medicine and Clinical Medicine. The chair of Practice was taken by Adam Kuhn, who held it until 1797, when Rush added that, too, to his other labors, though not formally elected to the position until 1805. After that he continued the triple burden until his death.

So we begin to get some idea of the magnitude of his labors. Two sets of lectures, clinical talks, an arduous service at the Pennsylvania Hospital, a daily routine practice never shirked, constant and often distant consultations, a voluminous correspondence, public lectures and their preparation, omnivorous reading, essay writing and publishing, the inevitable interruptions that came to him as a quasi-public man, the cares of a large family,—these were some of his duties in life. He performed them punctually, exactly, without haste, thoroughly. His health was not of the best, but he conserved it; his life was not without sorrow, but he bore it as a philosopher should; and at the end we have heard him regret heaven because there would be no practice there. It is hard not to fall into eulogy. We all love the man who stands up to his work and takes without a whimper what comes to him. Here surely was such a one.

Rush's teaching was supplemented by his writing, and of his writing it is difficult to say, briefly and fully, the final word in a few pages.

In his early life he was a disciple of Cullen, but before long he began to see the fallacies of his old Edinburgh master, who has been called the " father of modern solidism." In Cullen's system, phenomena were attributed to conditions of the body's solids, the nerves being the chief agents; but he is best remembered for his nosology, which arbitrarily divided pathological processes into many hun-

dreds of species and genera, like the classification of plants, and found an appropriate method of treatment for each. Those teachings of Cullen sound absurd enough to-day, but the genius of the master raised them to a very great popularity in Rush's youth, and many years were spent in threading their intricacies.

Later, Rush was attracted by the theories of John Brown, Cullen's pupil, rival, and enemy. He gave much attention to the Brunonian philosophy, making the "Theory of Life" available in the construction of a new system. That Scotch physiologist distinguished only two pathological states: one consisting in an excess of incitability, which he names the "sthenic diathesis;" the other constituted by a want of the same faculty, which is the "asthenic diathesis." After having reduced all diseases to two genera and withdrawn from pathology the study of local lesions, Brown shows to his own satisfaction that the sthenic order is very small, the asthenic or feeble, debilitated order very great or almost universal, with the result that nearly all diseases must be met by stimulating. It was an easy, pleasant doctrine and made alcohol the *summum bonum*.

Now, neither of these two theories—the one complex, the other simple—was accepted by Rush, though writers, even of our own day, constantly call him a Brunonian. He did, indeed, abandon the clumsy, voluminous nomenclature of Cullen to follow a simplified method, but he never accepted Brown's proposition that nearly all conditions needed but stimulation. Indeed, if Rush stood for any one thing, it was a return to normal conditions,—a wholesome hygienic life, air, water, exercise, and the *vis medicatrix naturæ*. He added to that the over use of certain drugs and he championed bleeding, but to no such extent as some of his followers proclaimed. A pardonable error of which he was guilty was constantly to confuse symptoms with diseases,—an error universal in his day,—

and so to build up a series of therapeutic propositions which only his own sound sense and great experience could control.

His syllabus is full of interesting information more or less erroneous to us with our better knowledge. Inflammation had been called a disease; he called it an effect of disease, *error loci,* red blood in serous vessels; hence, as one of his eulogists says, "he escaped all the self-tormenting unprofitable folly of inquiring, what is inflammation?—a question that can never be answered. To go behind this *error loci,* inquiring into the mysteries of the formal cause must forever be vain; as well might you inquire, as Newton vainly did, what is the cause of attraction and repulsion?"

These words of Samuel Jackson, written some forty years ago, already beg an apology for the apologist. Rush fell into the error of so many other system-builders, and, confusing cause with effect, asserted that inflammation was the result of fever,—an assertion which Jackson indorses.

"He had learned from a French writer two words,—Centrifugal and Centripetal; hence all his hopes in Yellow Fever, and other Centripetal diseases, were placed in timely depletion or revulsion or in changing the deadly excitement by mercury.

"Here is one of the diseases in which the physician is master, his reason directing; nature is the servant, acting by necessity and of herself doing nothing but mischief."

At the time of his succeeding Morgan, in 1789, Rush wrote Ramsay that "the system of Cullen was tottering; that Brown had brought forward some luminous principles, but mixed with others that were extravagant, and that he saw a gleam of light." He then proceeded to that consideration of the Brunonian system which led to his inquiry into the cause of life, and finally to another doc-

trine,—not, however, a necessary consequence of it,—*the unity of disease.* Excitement or life is a unit, and this can be accurately divided into healthy and morbid only; hence there can be but one disease, morbid excitement. Then he goes on to describe six primary forms of this unit,—spasm, convulsion, heat, itching, aura dolorifica, and suffocated excitement. It is all profitless enough, but it is interesting to watch how this really able man wandered away even from the science which the best of his own day were already grasping, and involved himself in nebulous contradictions; for after his premise of the unity of disease he actually winds up in the absurdity of describing manifold diseases most accurately and exactly.

Rush did one excellent work in teaching that general debility predisposes to disease, and in this he differed from Brown, who held that the debility was part of the disease itself.

One of Rush's most famous essays was on "The Influence of Physical Causes on the Moral Faculty," read before the Philosophical Society of Philadelphia, the President of the State, the Supreme Council, and the members of the General Assembly. He defines the moral faculty as a power in the human mind of distinguishing and choosing good and evil. "It is a native principle, and though it is capable of improvement by experience and reflection, it is not derived from either." "This faculty is often confounded with conscience." "The moral faculty performs the office of a law-giver, while the business of conscience is to perform the duty of a judge." "The moral faculty is to the conscience what taste is to the judgment and sensation to perception." The total absence of the moral faculty he styles *Anomia;* the weakened action of it *Micronomia.* Thence he studies the influence upon it of various physical causes: climate, diet, certain drinks, excessive sleep, bodily pain, cleanliness, solitude, silence, music, eloquence of the pulpit, odors

of various kinds, light and darkness, medicines, irritation, habit, association, sensibility, cruelty, attraction, composition, decomposition, each of which influences is itself made a subject of study. The essay winds up with a fine tribute to Benjamin Franklin, a man "who appears to have been lent to mortals on purpose to render our globe a more convenient and safe habitation for the children of men."

Doubtless the most conspicuous of Rush's publications and the work on which (mainly) his fame rested is "An Account of the Bilious Yellow Fever, as It Appeared in Philadelphia in 1793." It fills two hundred and eighty-six pages of the third volume of his collected works and is certainly a wonderful production. Indeed, the last chapter alone, in which Rush describes his own sensations during the epidemic year, is a masterpiece of realism, considering the formal times in which it was written. The book circulated immediately throughout Europe, and was translated into three languages. Trotter called it "the best history that was ever written of an epidemic. Who would not travel through this vale of tears, amidst blasts of contagion, to share the well-earned fame of Dr. Rush?"

Zimmermann said that "he merited a statue not only from Philadelphia but from all humanity;" and Lettsom states "that all Europe was astonished at his novelty and bold decision, his unprecedented sagacity and judgment."

This essay and some few others of Rush's writings have been hinted at. The field he covered was truly almost encyclopedic, and a list of his subjects is given at the end of this chapter. Most of the writing was well done,—not hasty, for his teeming note-books supplied him with an abundance of carefully gathered material; and the man among us who wishes to devote his leisure moments to a more careful survey of the volumes will find in them a goodly supply of modern thought as well as a delightful story of the medical problems of a hundred years ago.

Richardson says, "In his character of Physician we may look upon Rush as a healer, a Sanitarian, an Orator, a Man of Letters and a Teacher. Within the strict lines of the accomplished Physician he was remarkably Conspicuous in all these departments."

The most important year in Rush's life, after the end of the Revolution, was 1793. He was then forty-eight years old, just reaching the high tide of his work, full of energy, zeal, and courage, and never more ready to take hold of the opportunity offered him by the great yellow fever epidemic of that year. Up to that time, although well known to the profession and one of the strong men of the Pennsylvania School, his fame had by no means become national, and he was unknown in the Old World. Besides Rush's own story of the epidemic, we have the graphic description by Mathew Carey, which supplements admirably the more famous account.

At the time of the outbreak Rush held that yellow fever was contagious, that it might and did arise from ill-kept houses and foul odors, and was not imported. The former of these two beliefs he frankly abandoned later, being convinced, as modern science has conclusively proved, that personal contact does not convey the disease; but he clung to the belief that it might and did arise spontaneously in Philadelphia, and for this he was submitted to one of the bitterest medical persecutions in our history.

The cases began to be reported in August and did not disappear until the advent of frost in October. The mortality during those three months was four thousand and forty-one, of whom three thousand four hundred and thirty-five died in September and October, after the disease had gathered full headway. The population of Philadelphia at that time was forty thousand; and, as probably a fourth part had fled from the city, it is fair to say that, of those actually in residence, ten per cent. perished in the space of two months.

Ramsay says, "the year 1793 brought the theories and the native strength of Dr. Rush's genius to the test," and in a sense he is correct. At that time no infectious disease had been studied in the sense that we understand the term, if we except smallpox, and thirty-one years had elapsed since yellow fever had shown itself in Philadelphia. The profession mostly was ignorant of it, except in theory. Rush and a few of the older men could recall the last visitation, but, save for the crude therapeutics of that earlier era, they were ignorant how to meet it. Indeed, when Rush startled the community by announcing its presence and how it must be distinguished from the ordinary "bilious fever," he was met with sharp denial and reproach. However, the authorities directed the health officer, James Hutchinson, to investigate, and he shortly reported that the disease was undoubtedly present and that forty [10] persons had already died of it. This was about four weeks after the appearance of the first case. Various explanations of the fever's appearance were forthcoming. It was at first supposed to have been brought by a vessel from Cape Français, but the surgeon of the ship so vehemently denied any sickness on board that this most probable explanation was abandoned, and the theory of Rush and Hutchinson was generally accepted,—namely, that a mass of decaying coffee and old hides thrown out on a wharf had given rise to so foul a stench as to breed the disease. Indeed, after this filth had been destroyed it was still asserted, with much wagging of heads, that the odor persisted and continued to propagate the fever. Of course our present knowledge of the *Stegomyia teniata,* as the host of the yellow fever organism, was not dreamed of for nearly ninety years — that busy mosquito still roamed unquestioned by the doctors; but it is surprising

[10] Rush asserted that the number at this time was nearer one hundred and fifty.

that so acute a mind as Rush's should have accepted the spontaneous generation idea and forced it down the throat of an unwilling public.

But whatever the theory of its cause, prompt and wise measures were taken by the authorities, acting under the advice of the profession, to meet the epidemic. At a meeting held on August 25 the following broadsheet was issued by the College:

"PHILADELPHIA, August 26, 1793.

"The college of physicians having taken into consideration the malignant and contagious fever that now prevails in this city, have agreed to recommend to their fellow citizens the following means of preventing its progress.

"1st. That all unnecessary intercourse should be avoided with such persons as are infected by it.

"2nd. To place a mark upon the door or window of such houses as have any infected persons in it.

"3d. To place the persons infected in the centre of large and airy rooms, in beds without curtains, and to pay the strictest regard to cleanliness, by frequently changing their body and bed linen, also by removing, as speedily as possible, all offensive matter from their rooms.

"4th. To provide a large and airy hospital in the neighborhood of the city, for the reception of such poor persons as cannot be accommodated with the above advantages in private houses.

"5th. To put a stop to the tolling of bells.

"6th. To bury such persons as die of this fever, in carriages, and in as private a manner as possible.

"7th. To keep the streets and wharfs of the city as clean as possible.—As the contagion of the disease may be taken into the body and pass out of it, without producing the fever, unless it be rendered active by some occasional cause, the following means should be attended to, to prevent the contagion being excited into action in the body.

"8th. To avoid all fatigue of body and mind.

"9th. To avoid standing or sitting in the sun; also in a current of air, or in the evening air.

"10th. To accommodate the dress to the weather; and to exceed rather in warm than in cool clothing.

"11th. To avoid intemperance, but to use fermented liquors, such as wine, beer, and cyder, in moderation.

"The college conceives *fires* to be very ineffectual, if not dangerous means of checking the progress of this fever. They have reason to place more dependence upon the burning of *gun-powder*. The benefits of *vinegar* and *camphor* are confined chiefly to infected rooms, and they cannot be used too frequently upon handkerchiefs, or in smelling bottles, by persons whose duty calls them to visit or attend the sick.

"Signed by order of the college,

"William Shippen, Jun.,

"*Vice-President.*

"Samuel P. Griffitts,

"*Secretary.*"

By this time the disease was well started and its existence unquestioned. Almost no class in the community was spared, though for a time Rush held that negroes were immune and that butchers, house-painters, gravediggers, and scavengers were rarely afflicted. In the end, and most unfortunately for those reputed immunes, since they had volunteered to attend the sick, it was found that all men fared alike. Soon the panic became universal. Those who could, fled from the city, the well shunned the sick, the sick gave themselves up for lost, the supply of nurses and physicians failed, and the terror increased when it became apparent that the wretched doctors themselves knew not what to do. For many weeks the weather continued hot and sultry, adding to the misery of existence and stimulating the spread of the fever. It became ap-

parent, too, that a previous attack was no safeguard, for Rush reported a number of fresh cases in persons whom he himself had attended in the epidemic of 1762. This present outbreak proved to be far fiercer than the last. It spread more rapidly and ran much longer, many more persons were attacked, and the mortality was far higher.

Like the rest of the profession, Rush was at his wits' end, and it is interesting to note how different from modern methods were the means adopted by such men for solving the problem of treatment. In these days the natural history of a disease is worked up, its pathological anatomy investigated, and clinical and laboratory researches elaborately and carefully made in order to learn the exact nature of the phenomena under discussion and so, perchance, to find an appropriate and rational remedy. Those ancient men, on the contrary, had their preconceived notions as to the nature of the disease, and limited themselves mainly to searching the literature of the subject and to experimenting with drugs.

It was by some such means as this that Rush hit upon what he ever after believed was the panacea for yellow fever. For weeks he studied the records and found countless remedies, all of which failed in his hands. At length, among his manuscripts, he lit upon that old essay, written fifty years before by John Mitchell, of Virginia, describing the fever as it prevailed there in 1740 and succeeding years. The paper had found its way to the hands of Franklin, who had passed it on to Rush, and it had long lain forgotten. In it Rush found this statement: "that evacuation by purges was more necessary in this than most other fevers and that an ill-timed scrupulousness about the weakness of the body was of bad consequence in these urging circumstances." "I can affirm that I have given a purge in this case when the pulse has been so low that it could hardly be felt and the debility extreme; yet both one and the other have been restored by it." These were

the words Rush wanted and to these he pinned his faith. They fitted in well with his own notions of the nature of fever, and he thought he saw that the debility indicated by the low pulse was due to the "oppressed state of the system," which must be relieved by purging, supplemented by bleeding. Here was the theory and here were the remedies ready made to fit all fevers. Rush seized upon and exploited them. They became a strong staff in his hands. He taught them eagerly and employed them freely, and so great were his eloquence and zeal that for two generations he remained the prophet and his words prevailed.

For the business immediately in hand he was equipped, and he proceeded to employ Mitchell's principles. Calomel was his sheet-anchor. Calomel and jalap in ten- and fifteen-grain doses, repeated frequently, became the routine, and the effect far exceeded his expectations. He is said to have cured the first four patients on whom he tried it. Then he told his discovery to his friends. He instructed doctors, nurses, apothecaries, and the public. It was a great procedure and was instantly adopted by his disciples. His own sublime faith in the treatment is shown by this entry in his note-book of September 10, "Thank God! out of one hundred patients whom I have visited or prescribed for this day I have lost none."

That is the sort of thing which runs through his writings. It is that sort of joyous and enthusiastic optimism which gives pause to the modern observer, with his exact methods and his critical and sceptical mind. What, pray, is one to believe if Rush could write such stuff as this, which implies, if it does not assert, that he had found the certain cure for yellow fever? Yet that was his genuine belief. The credulity of those men was often thus manifested, and in another place Rush himself tells us that "The pulmonary consumption . . . even when tending rapidly to its last stage has been cured by

bleedings, digitalis and mercurial salivation," "Gout has been torn from its ancient sanctuary," "Dropsy is cured," "Tetanus is prevented by inflaming the injured parts, . . . and often cured by opium, bark, and wine," "Madness has yielded to bleeding, low diet, mercury, etc.," and "the last achievement of our science consists in the discovery and observation of the premonitory signs of mortal diseases and in subduing them by simple remedies in their forming state." [11]

We are told that the credit acquired by this method of treating yellow fever almost killed the fortunate inventor by the overwhelming mass of practice it brought him. In the first week after its publication he visited and prescribed for between one hundred and one hundred and fifty patients a day. He was never idle. The people besieged him at his meals and clamored at his bedroom door. He was obliged to do much of his practice vicariously, and his pupils were kept busy night and day compounding powders, bleeding, and visiting. It is not surprising to learn that he broke down under the strain. The nature of his illness is not entirely obvious, but one is left to assume that it was the prevailing fever. At any rate, he submitted to his own heroic remedies, survived them, and lived yet twenty-three years. As Ramsay says, this year laid the foundation for his enduring fame. Had he lived in the pagan world, he would have been deified; had he lived in the Dark Ages of Christendom, he would have been canonized.

But he had made enemies by his outspeaking and by his phenomenal success. Many influential, honest citizens thought that he had hurt their town by teaching that the pestilence was not imported, but arose *de novo* therein; many of his professional brethren hated him for his methods and his popularity. William Cobbett, a clever

[11] Medical Inquiries and Observations, vol. iv. p. 393 *et seq.*

and unscrupulous journalist, was enlisted to attack Rush, and his paper, *Peter Porcupine's Gazette,* soon teemed with viperous attacks upon the new treatment,—the doctrines and their author. The outcome of it all was that Rush was induced to prosecute Cobbett in the courts. He succeeded in punishing him in a fine of five thousand dollars and in driving him out of town. The unfortunate editor went to New York, published there for a time a paper called the *Rushlight,* and then flickered out and was forgotten. His articles are not edifying, and even Rush's defence, from our modern point of view, might better have been left unsaid.

The wretched editor was punished, but the controversy lived; and though Rush's great name and services bore down opposition and long survived the man, he could not escape the fate of all system-builders in science; there arose a rival school, and for many years, even until the time when men came to know that science is knowledge, in which systems have no place, his disciples and their opponents continued to discuss the merits and demerits of the American Sydenham.

Among the other conspicuous labors of this incessant writer was his work as an alienist. A prominent physician says,[12] "Benjamin Rush and Isaac Ray are the two Americans who have done most for Psychiatry. . . . Until the year 1883 the only systematic American treatises on insanity, either in its medical or medico-legal relations, came from the pens of these two remarkable men."

It is needless here to do more than refer to Rush's labors in this great field. His studies, lectures, and practice were thorough and original therein, and his appreciation of the value of the study of mental disease appears from the fact that such instruction of his was given to the students in regular course, for he regarded the subject as

[12] Charles K. Mills, Benjamin Rush and American Psychiatry, 1886.

of vital importance to all physicians. He was one of the first to classify mental afflictions, and to distinguish the various states from the points of view of etiology and prognosis. His treatment, too, was often rational and far in advance of his times. Here, as in all his lectures on therapeutics, he insisted upon the importance of personal hygiene, especially upon the value of proper food, bathing, fresh air, exercise, and abstinence from stimulants. Mills's article is an admirable résumé of his doctrine and teaching, well worth the reading by those so minded.

So catholic were Rush's interests and so eager was he in the imparting of information that, except for the fine arts and surgery as distinguished from medicine, few subjects germane to the life of an accomplished scholar and physician escaped his scrutiny.

Of temperance he was the constant preacher, far in advance of his day. He estimated that in the United States four thousand persons died annually of strong drink, and he raised his voice for abstinence. His advice to the intemperate was to shun alcohol suddenly and entirely, not drop by drop; and he urged his brethren to prescribe tinctures sparingly. Unfortunately for the force of his preaching, his hatred of tobacco was equally strong and his condemnation injudicious. Of his antislavery convictions we have already made some note.

He wrote vigorous, luminous articles on infectious diseases: malaria, scarlatina, diphtheria, measles, influenza, and hydrophobia. He advocated an extensive plan of free education, and published a useful paper on the amusements and punishments proper for schools. He contributed a valuable article on the study of Greek and Latin as a branch of liberal education, an address to clergymen of all denominations "upon subjects interesting to morals," "Thoughts upon female education, accommodated to the present state of society," and "Information to Europeans emigrating to this country;" also a commentary on the

state of the body and mind in old age, and a paper on the sugar-maple tree. He edited the works of Sydenham, Pringle's "Diseases of the Army," and the writings of numerous lesser men. While he lived he wrote and taught, and he practised what he taught.

His life, after 1793, knew no striking incidents; the years went on, punctuated, indeed, by his publications, for he took no rest and kept adding to his labors. A gray old man, alert and busy as in youth, he never put off the harness, and in harness he died.

He died on April 19, 1813, after an illness of four days, probably of pneumonia, though James Mease, who attended him, called it "a pleurisy." At any rate, the accounts are not clear.

Never in our history has the death of a physician created such a sensation. The man was one of the few surviving signers of the Declaration of Independence and a friend of both Jefferson and Adams. His contributions to science were supposed to be beyond price, and his person was known and loved by thousands of his fellow-countrymen. It was said that since the death of Washington no man was more universally and sincerely mourned.

We have seen of what sort he was: a patriot, a scholar, a writer, a teacher, and a physician; yet the tale is only a synopsis. His good deeds would occupy volumes; but at the end we come to inquire, On what does his fame rest? Perhaps that question has already been answered in some fashion. He was not a Sydenham or an Hippocrates. If one must find a comparison, the name of Boerhaave suggests itself: the great student and furious worker; convincing, magnetic teacher, yet to the science of to-day little more than a myth; forgotten mainly because, with all his wonderful force and ability, he created nothing; he but collected and applied the work of other men. Even this comparison is in many respects unfair

to Rush. He was all that we see in his Dutch prototype, but he originated as well—notably his theory of fevers and his method of treating the insane; and, more than that, he led his generation in many fields extra-professional.

But, after all, it was not for these things that he was known best and longest remembered. I think, if we must remember him for any one thing, it should be for the impetus that he gave to the love of science and to the search after truth for truth's sake. To be sure, he often failed and himself went wandering after strange gods, but the will was there and the sound ideal. We have seen how his pupils went abroad in the land, and we might trace their influence for generations. In his fine oration on Cullen, of Edinburgh, he says, "That physician has lived to little purpose who does not leave his profession in a more improved state than that in which he found it. Let us remember that our obligations to add something to the capital of medical knowledge are equally binding with our obligations to practise the virtues of integrity and humanity in our intercourse with our patients. Let no useful fact, therefore, however inconsiderable it may appear, be kept back from the public eye; for there are mites in science, as well as in charity, and the remote consequences of both are often alike important and beneficial. Facts are the morality of medicine; they are the same in all countries and throughout all time."

In large measure such teaching was exemplified in Rush's own life. He went on laboriously, zealously, fruitfully. The figure still looms large, though dimmer through the years. He was our first great teacher, and for that, if for nothing more, let us remember him.[13]

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[13] Samuel Jackson gives us the following summary of Rush's honors and publications:

"The fame of Dr. Rush was such as to make him a member of nearly every medical, literary, and beneficent institution in his

country; he was distinguished also by many honors from Europe. He was a member of the Society of Arts and Sciences of Milan, of the Society of Naturæ Curiosorum, of the National Institute of France, of the School of Medicine of Paris; he was created LL.D. by Yale College, was Treasurer of the United States Mint from 1799 to his death, when, in his memory, the office was given to his son; thus it remained in his family thirty years, through the official terms of four Presidents.

"He was addressed by the Prussian government on the subject of yellow fever, receiving from the king a coronation medal, as a compliment for his answer.

"He received the thanks of the King of Spain for his answer to queries on the same subject.

"He received a gold medal from the Queen of Etruria as a mark of respect for his medical character and writings.

"The Emperor of Russia presented him on the same account with a costly diamond ring.

"His writings are numerous, and may be very conveniently set forth here in four departments, showing in what state they were originally found in the book-stores.

"I.

"Between the years 1789 and 1804 he published five volumes of medical inquiries and observations. Of these he printed in 1805 a second edition in four volumes, in 1809 a third edition in four volumes, and they have been reprinted since his death.

"They comprehend the following:

"Natural history of medicine among the Indians of North America, read before the American Philosophical Society in 1774.

"Inquiry into the influence of physical causes on the moral faculty, read to the Philosophical Society, 1786.

"On the influence of the American Revolution on the human body and mind.

"An inquiry into the relation of tastes and aliments to each other, and into the influence of this relation to health and pleasure.

"Result of observations made on the diseases of the military hospitals during the Revolutionary War.

"An inquiry into the effects of ardent spirits on the body and mind.

"Observations on tetanus.

"On diseases caused by drinking cold water.

"On the cure of several diseases by the extraction of decayed teeth.

"Upon worms and anthelmintic medicines.

"On arsenic in the cure of cancer.

"An inquiry into the cause and cure of sore legs.

"Observations on the duties of a physician and on the methods of improving medicine.

"On the state of the mind and body of old age.
"Vol. II.—On the climate of Pennsylvania.
"Two essays on consumption.
"On the cause and cure of dropsies.
"On internal dropsies of the brain.
"On the cause and cure of gout.
"On the cause and cure of hydrophobia.
"On the cause and cure of cholera infantum.
"Observations on cyanche trachealis.
"Account of the remitting fever of 1780.
"An account of the scarlatina in 1783 and 1784.
"On the measles of 1789.
"Account of the influenza of 1789, 1790, 1791.
"Vol. III.—Outlines of the phenomena of fever.
"His various histories of the yellow fever in Philadelphia from 1793 to 1796.
"Vol. IV.—Histories of the yellow fever in Philadelphia from 1797 to 1805.
"An account of the measles in Philadelphia, 1801.
"An account of the diseases in Philadelphia from 1806 to 1809 inclusive.
"An inquiry into the various sources of summer and autumnal diseases in the United States, and the means of preventing them.
"Facts to prove yellow fever not contagious.
"A defence of bleeding.
"An inquiry into the comparative state of medicine in Philadelphia between the years 1760 and 1809.

"II.

"A volume of essays, literary, moral, and philosophical, originally published in the periodicals of the day; collected and published in one volume, 1798, and frequently republished.
"The volume consists of:
"A plan for establishing public schools in Pennsylvania, and for conducting education agreeably to a republican form of government, 1786.
"Of the mode of education in a republic.
"Observations on the study of the ancient languages, with hints of a plan of liberal instruction without them, accommodated to a republic.
"Thoughts on the amusements and punishments proper in schools.
"Thoughts on female education, accommodated to the present state of society, manners, and government in the United States.
"A defence of the Bible as a school book.
"An address to ministers of the Gospel of every denomination upon subjects interesting to morals.
"An inquiry into the consistency of oaths with reason and Christianity.

"An inquiry into the consistency of the punishment of murder by death with reason and revelation.

"A plan of a peace office for the United States.

"Information to Europeans disposed to migrate to the United States.

"An account of the progress of population, agriculture, manners, and government in Pennsylvania.

"An account of the German inhabitants of Pennsylvania.

"Thoughts on common sense.

"An account of the vices peculiar to the Indians of North America.

"Observations of the influence of tobacco upon health, morals, and property.

"An account of the sugar-maple tree of the United States.

"The life and death of Edward Drinker, aged one hundred and three.

"Remarkable circumstances in the life of Ann Woods, a woman of ninety-six years.

"Biographical anecdotes of Benjamin Lay.

"Biographical anecdotes of Anthony Benezet.

"Paradise of a negro slave.

"Eulogium on Dr. Cullen.

"Eulogium on Rittenhouse.

"III.

"Six introductory lectures published 1801, to which ten others were added and published, 1811.

"Medical inquiries and observations on diseases of the mind, one volume, 1812.

"The works of Sydenham, Pringle, Cleghorn, and Hillary he published the last three years of his life, with original notes.

"No portion of his manuscript lectures has been published since his death.

"IV.

"Sermons to young men on temperance and health, 1770.

"His two essays against negro slavery, 1771.

"His numerous contributions to the newspapers and magazines of the passing time on literary subjects; during the war, on politics and the establishment of the general and State governments.

"Among these may be noted his four letters to the people of Pennsylvania on the Constitution of 1776; also his vehement denunciation of the Test Law.

"A highly interesting and instructive memoir of Christopher Ludwik, baker-general to the Revolutionary army, republished by the Charity School Society of Philadelphia."

CHAPTER VII.

THE EIGHTEENTH CENTURY. ELIHU HUBBARD SMITH.

A NEW generation, with new ideas of medicine, began to be known in those years following the Revolution. We have seen how the forward movement of the time was stimulating men, and how science as well as politics was feeling the effect. Not that reflective individuals were lacking in the earlier days, but they had been pioneers; nor for many years was their influence felt broadcast. Shippen, Morgan, Bond, Rush, and their like had sown the seeds. Their enthusiasm had been quickened and their knowledge enlarged by travel and contact with the best minds in Europe; and, in their turn, they transmitted something of the true spirit to the youth at home.

Indeed, in those years, and for many years thereafter, we were dependent on Europe for many things, although the seeking of them out was the privilege of the few.

The new generation was growing up, however,—a generation very different from that known to old Zabdiel Boylston and his froward Douglass in the beginning of the eighteenth century. This was an era of men who had learned their lesson from the stern fathers of the Revolution, and had accomplished their humanities in the growing colleges of the young republic.

No man more than Elihu Hubbard Smith illustrates the best in that new generation, and the story of his short life is a pleasant index of the better things to come.

Smith was born in the Connecticut village of Litchfield, in the western part of the State, in the year 1771, four years before Bunker Hill. It was a conspicuously virile family from which he came: five generations in the

land, successful always in professional life,—clergymen, lawyers, and physicians.

In these days of city living we are apt to forget the advantage enjoyed by our colonial ancestors in the good hygiene of an uneventful country life. There were no cities as we understand cities; there were no rich men; folk lived strenuously, but within bounds; and the best of them were still near the soil. Nor was life so direful as in the early Puritan days. Jonathan Edwards had indeed come and gone, but the terrors of future punishment for all but the elect had ceased in part, and with them the stern formality of an earlier time.

So it was into a kindly, well-cultivated, simple home that young Smith was born; a type of the best that we have seen in our New England towns.

Reuben Smith, his father, was a physician widely known for his ability and honest energy; Abigail Hubbard, his mother, a daughter of a well-known Connecticut family,—well known before and since,—was a charming woman of sense and education; truly a mother in Israel.

It is pleasant to dwell on those primitive times and the men they produced; for, after all, it is from such that have come the best we have to show. Those people are still preserved for us in the pages of Mrs. Stowe; and one cannot but hope that such honest folk, with their earnest inexperience, form to-day the real basis on which we have to build.

Young Elihu was a precocious boy, but not a prig. Prigs do not flourish in such surroundings. He was one of ten children, sons and daughters; the flower of the flock, but all unknown to himself; given to country sports and work; he grew up sturdy, modest, sane, brilliant, in an atmosphere where the father's work as physician was by no means the least salient. Early a student and linguist, his accomplishments as a child suggest the younger Mill.

When but eleven years old, after two years spent at the excellent Greenfield Academy, where he distinguished himself under the tuition of Dr. Timothy Dwight, afterwards President of Yale, he entered with high honors the College of New Haven, in the class of 1786.

Even in those days eleven was thought a very youthful age for college boys,—though, indeed, the course at Yale, as at Harvard and elsewhere, was little beyond that of the modern High School, and the A.B. degree was conferred frequently on lads in their teens. Still, young Smith was a rare exception; regarded with pride and admiration by his teachers, popular and of good report among the students. He passed through his course with the highest honors, showing always an intellectual vigor and maturity far in advance of his years, and at the age of fifteen was graduated at the head of his class.

He was graduated at the head of his class,—a mere school-boy we should account him in these days; yet his course was more than half run. Some twelve years remained to him; years full of work and honors.

From childhood young Smith's career had been cut out for him. His father's profession attracted him always because it was his father's, but his nature led him still more strongly that way. It was a kindly nature, full of the new helpfulness of the day; but, more than that, he was born with a love of knowledge and an eagerness for science. More than other lads, he would seek out all things for himself, and even as a boy he had begun to question mere authority and to explain phenomena by natural laws.

There was abundant time at the outset for his training in medicine. The age of fifteen seemed far removed from serious practice even then, so he soberly planned for himself a long and thorough schooling. For five years (from 1786 to 1791) he studied and practised with his busy father at the Litchfield home—apprenticed to him, as the

custom then was; and while still under twenty he acquired an intimate practical knowledge of the country doctor's life.

The surprising thing is that, with all this grind of humdrum routine, he never lost his broad professional ideals; indeed, they constantly became more real to him, and, far from sinking into a mere hack, he saw always more clearly the imperative need for himself and his kind of a wider experience and deeper study.

As we have seen, those were days of small things in medicine. The Harvard School was being established, the school in New York was rising again after the Revolution; but Philadelphia was then, and for long afterwards, the Mecca for young Americans seeking the best degree.

The year 1791 saw the end of the controversy between the old College of Philadelphia and the University of the State of Pennsylvania. The two were united under the title "The University of Pennsylvania," and an able, experienced staff of teachers was appointed to the new chairs: Shippen and Wistar to Anatomy and Surgery; Kuhn to the Theory and Practice of Medicine; Rush to Clinical Medicine; Hutchinson, Griffitts, and Barton to Chemistry, Materia Medica, and Botany; very strong names as we look back at them now after more than a century.

It was a common thing in those days for young men of considerable medical experience to attend a medical school for one or two terms in order to secure the degree,—indeed, that was the usual course pursued, — and Smith accordingly found himself in contact with a large body of practical men.

As in college, so here again he was quickly marked by his instructors. Rush especially became his warm friend, and an intimacy was established which ended only with the life of the younger man.

Smith devoted himself to the theoretical side of his medical studies. He had always been an omnivorous reader, and now that he was living in an academic atmosphere his appetite for study knew no bounds. Those were still the days of theories in the investigation of diseases, and he did not escape the habit of his time; but he did appreciate more than others the value of observation, and his carefully kept note-books proved to be a storehouse of facts when he reached the time for giving forth.

The disease which interested him more than others was yellow fever, the common scourge of our seaboard, and his formulated opinions later came to be held in very high regard. Aside from his purely professional studies, young Smith was by no means neglectful of the humanities. He was a poet of some pretension, his friends thought; he was an eager student of history, ancient and modern; he kept up his reading of the Greek and Latin classics; and he cultivated those men of like tastes with himself. Among others, he became intimate with our first considerable novelist, Charles Brockden Brown, whose friendship proved thereafter a warm and constant one.

Smith spent one year in Philadelphia, and in 1792 was graduated with high honor and the M.D. degree. He was not rich, and practice was essential to him. His father was growing old and there was need of paying work; so, regretfully, he gave up thoughts of a city life, for the time at least, and betook himself to Wethersfield, near Hartford, in his native State.

Fortunately or unfortunately, as the event proved, that was for but a brief season. The people of that country district failed to appreciate the sort of man that had come among them. He was but twenty-one years old, youthful in appearance and too eager, perhaps, in his new mission. Besides, there was resident there an ancient practitioner who thought little of the young man and his modern ways.

It was the old story, then, of jealousy, heartache, and failure. The purse was a short one and the road seemed very long. For one year Smith struggled on the dreary round; then the temptation to a larger life became too much for him to resist, no matter what the cost. He threw up his infant practice, listened to the urging of anxious friends, and went to try his fortune in New York City. This was in 1793.

At the time of his going to New York the state of medicine there was distinctly chaotic. The physicians of the city were not a unit. There were many able men among them, but no cohesion. Jealousy and bickering had been doing their work since the Revolution, and the turmoils of the famous "Doctors' Mob" were not yet forgotten. The New York Hospital, however, was doing good work. It had been reopened in 1791, under the auspices of Samuel Bard and Malachi Treat, and was devoting itself especially to the care of what we now call acute infectious diseases.

In New York Smith lived five years and then died; and it was in those years that he built up a reputation and established a character which make him, for our purposes, a type of the best that the new times were producing in our country. Material for the story is meagre, but the outlines are clearly marked, and sketch for us a life which, in its enthusiasm for the truth as he saw it, stamp a man whom it is well to know.

Like old Deacon Fuller also, "he was successful in his practice"—after all, a fact not to be despised when one is young and poor and ambitious. More than most men of his day, however, he appreciated the task which lay before immature science, and he early conceived the thought of a great development of national medicine, a community of interest among scientific men, a working out of original research, and the interdependence of special branches upon one another. His idea was a great American med-

ical organization, to be extended later, perhaps, to all parts of the globe; a constant interchange of knowledge and experience; the upbuilding and perfecting of medical schools; the need of a broad foundation as a preliminary to the study of science; the setting of a high standard for matriculates, and the winnowing out of the inefficient. He appreciated the true character of quackery and humbug and the futility of waging war with self-convicted shams. He knew that our task must be to search out the truth, and that the false must perish of its own decay.

These lofty visions, so far in advance of his time, did not lie dormant in his fertile brain. He felt at once that exposition was essential, and with that in view he seized upon the machinery at hand. There spoke the practical genius; no nebulous dreams of a possible future contented him, but he must use at once the tools within his grasp.

So he learned the method which others had learned in older lands, and established the first American medical periodical, *The New York Medical Repository;* and, in conjunction with Samuel L. Mitchell and Edward Miller, launched the ambitious work. All this may sound small to us. It is all trite enough and tame enough, perhaps; but more than a hundred years ago it marked a very real forward movement.

A French sage has said that "a statesman must work as though he were to live forever," and in some small way this was the principle on which Smith began.

He began and then he died, and the memory of him and of his work died with him. But his work itself had caught the spirit of the times.

He was an exemplar, as it were, of what feeble light then dimly illumined the minds of men. Doubtless he was one of many, and they, too, left the scene; but the work went on, always stronger, through brilliant modern years.

That ambition and that beginning, almost futile they seem to us, tell the man's story. But there were other things very human and pathetic needed to round out the eager, youthful life.

One might have known that Smith was a poet.

We have seen his eagerness for letters when a student in Philadelphia, and his intimacy with those of like thoughts with himself. He is supposed to have been the author of "André," a tragedy in five acts, performed in New York the year after his death, and much thought of at the time. Perhaps his most ambitious literary production was "Edwin and Angelina; or, the Banditti," an opera in three acts.

It would be interesting, were it not tedious, to review this simple work. Juvenile it is, and full of thoughts gleaned from the older poets; but it is still pleasant to read, for Goldsmith and men of lesser note helped him.

Here are some liquid, blameless lines which illustrate his feat:

"I.

"The mountain streams, full deep and wide,
By banks unchecked, majestic, slow,
Roll peaceful down the sloping side
And bless the ways through which they flow.

"II.

"But if proud man shall dare restrain,
Forests nor rocks withstand their force.
They thunder headlong to the plain
And desolation marks their course.

"III.

"Yet o'er the low and humble dale
Gently their waters they diffuse.
Green springs the blade, and through the vale
Each faded flower its bloom renews."

That is a fair sample of his rhyming; not very coherent and not very obvious in intent. The tale is one of virtue

victorious after many woes; of bandits, barons, and beaux; blood-thirsty and tuneful, they wander across the forest stage. Wronged lovers agonize, tyrants repent, and virtue in the disguise of a monk emerges triumphant from a mossy grotto.

It is all very sweet and troubadour-like. There are touches here and there which indicate power, the artistic sense is not lacking, and there is promise of better things with time and longer life.

Smith's non-medical writings were not limited to these two essays. We have a stirring address delivered before the New York Manumission Society in 1798, and an interesting rhyming prefix to the American edition of Darwin's "Botanic Garden," which he edited.

Doubtless there was nothing great in all these, but they evinced a catholicity of interest and a widely cultivated mind none too common in the place and generation in which he lived.

During those years, however, Smith's more serious interests were actively exhibited in two directions: the *Medical Repository* and the New York Hospital. The latter institution early enlisted his enthusiasm, and in the year 1796 the governors elected him one of the visiting physicians. He filled the position with constant interest and zeal during his few remaining years.

From the outset of his hospital work Smith appreciated the fact, which has become a truism with us, that a hospital should be a school of learning as well as a refuge for the suffering. With this thought in mind he surrounded himself with students and infected them straightway with his own enthusiasm for work and for the study of disease. More than others he appreciated the value of observation, deduction, and exposition; and his careful, lucid teaching made a profound impression on the young men who were fortunate enough to come under his influence. His services to the hospital and to the community were quickly

recognized, and his admiring associates foretold for him the highest honors in their ranks.

The first strictly medical writing of his which has reached us is "Letters to William Buell, Physician, Sheffield, Massachusetts, on the Fever which Prevailed in New York in 1795." These letters were subsequently collected and published by Noah Webster. But his chief literary effort was directed to the *Repository*. We have seen what his ambitions were, and the files of the journal tell their own interesting tale. Indeed, for many years the publication proved most valuable and important. It lived for some sixteen years after Smith's death, and contains most of the good work produced in America by that generation.

Smith's own contributions were constant; among the most conspicuous were: "A History of the Plague of Athens;" "Case of Mania Successfully Treated by Mercury;" "Observations on the Origin of the Pestilential Fever which Prevailed in the Island of Grenada in the Years 1793 and 1794;" "On a Singular Disease with which Infants are Sometimes Affected;" "The Natural History of the Elk;" "On the Pestilential Diseases which Appeared in the Ottoman, Carthaginian and Roman Armies in the Neighborhood of Syracuse."

These essays do not need review at this late date; suffice it to say that they evinced an unusually intelligent pursuit and appreciation of the nature of infectious processes and marked a student of remarkable attainments.

It was earnest investigation of infectious diseases that brought the kindly young life to an end.

In those years no scourge was more dreaded in our seaports than the constantly recurring yellow fever. The writers of the day gave it their unceasing attention, and the pages of the *Repository* teem with articles on the subject.

It is needless to review the series of epidemics, made

familiar by Rush, which visited our cities during the closing years of that century. The years 1793, 1794, and 1795 had known the pestilence in its worst form, and now again in 1798 there came another and still more grievous visitation.[1]

Smith was one of those whose studies had led him to the belief that yellow fever is not directly contagious. He had already passed through several epidemics unscathed, and now devoted himself during the summer and early autumn unremittingly to the care of his stricken fellows. His attendance at the hospital was laborious; and while thousands fled the town and consternation everywhere prevailed, he labored with his comrades wherever a call might lead. The vivid picture of those days drawn by Mitchell, his associate on the *Repository*, tells the final story:

"During the warm season of that pestilential year Elihu H. Smith and myself had been associated in performing our respective duties as physicians of the New York Hospital. We had frequent conferences—we had both been favored with fine health and had been sustained in full enjoyment of our powers, while the prevailing distemper was destroying lives at an unusual rate around us. We had more than once observed how remarkably well we felt, and when strangers and visitors called upon us, how entirely we were capacitated to receive them and enjoy their society.

"Among these was the accomplished and elegant Scandella. In the difficulty which had arisen about procuring a lodging, this amiable gentleman (on account of an indisposition) apprehended some serious inconvenience.

"In the eagerness of his friendship, Smith asked him

[1] See Packard's History of Medicine in the United States, p. 110 *et seq.*

to his own house; his distress proved to be the reigning epidemic.

"It was one of the most obstinate, rapid and indomitable cases. It advanced with such speed that there was time for but a few visits.

"On the day that I called last to see Scandella, I found him overpowered by the disease, and lying a corpse upon the bed. This was affecting enough; but my solicitude was exceedingly increased by learning that Smith had been sick since the preceding afternoon. He was confined to his bed in an adjoining chamber, and was wholly ignorant of the fate of Scandella. On entering the room I roused him from the drowsy state in which he lay. I opened the inner shutter of the window for the purpose of admitting a little more light. It was early on Sunday morning. I inquired how he was and received for an answer, a frequent one in those days, that he was not very unwell and would be better by and by. I saw, however, in a glance enough to satisfy me that the disorder had already made alarming progress. But when he inquired of me if it was not almost sundown I perceived that the coherence of his mind was broken. Miller joined me in devising the course of treatment for our invaluable friend. There was but a remnant of time left. Smith expressed to me a desire to have the mercurial practice tried upon himself, but so implacable and inveterate was the disease that the quicksilver produced no sensible operation whatever upon the patient. Black vomiting with universal yellowness came on and he sank under a malady which nothing could even mitigate or retard. Miller, Johnson, and myself, with a very few others, were all that could be found, on that day of mortality, to follow his hearse.

"As a physician his loss is irreparable. He had explored, at his early age, an extent of medical learning for which the longest lives are seldom found sufficient.

"The love of science and the impulse of philanthropy directed his whole professional career and left little room for the calculations of emolument. He formed vast designs of medical improvement which embraced the whole family of mankind."

That was the end of it. The formal, friendly eulogy tells no more than truth. Indeed, from modern vantage-ground, the estimate seems less than one expects. Much more might still be said of the brilliant career of this remarkable young man, but here is enough to illustrate a type, and to show us that even in those days America was producing scientific minds of the highest order, and to point hopefully into the opening years of the coming century.

CHAPTER VIII.

THE EIGHTEENTH CENTURY. AFTER THE REVOLUTION.

Before leaving the group of men of whom we have been hearing, and that interesting eighteenth century, we must take a glance at those two centres of medicine, New York and Boston, and see in what fashion they fared during the few years remaining after the Revolution. Of Philadelphia we have already some knowledge.

In New York medical teaching languished until 1813. Though there lived and practised in the city a number of first-rate men, their dissensions and jealousies for years prevented medical progress. The Hospital made some history, however, and was launched anew after nine years of labor. In the interval between 1782 and 1791 the Society of the Hospital held annual meetings and elected officers, but the buildings were used for almost any purposes other than those for which they were erected. Sometimes poor folk were given the rooms as lodgings. One of the faculty (Bailey) gave some anatomical demonstrations there and did some operating, and for a few months the Legislature sat in the Hospital; but the most conspicuous event connected with the place during this dreary period was the once famous "Doctors' Mob." It was in the anatomical era, when students and doctors were making dissections there. There was hard feeling and suspicion about their finding bodies for the work,—natural enough, as any one must admit who reads the old demonstrators' own statements of their *modus operandi* in procuring material. They seem to have rifled graves whenever they could, regardless of sex or condition, and most people conceived an "ignorant prejudice" against

having their mothers and sisters dissected by a parcel of callow students.

The "Doctors' Mob" made itself "famous" on Sunday, April 13, 1788. While the dissecting was under way, a boy peeped in at the window, and some jocular individual who spied him from the room waved a dead arm at him, so the boy said. At any rate, he was duly impressed, and confided his experience to whomsoever would hear him, with the result that an angry crowd tried to take over the custody of the building and break up the anatomical course. The students and doctors thought it prudent to run away, and found sanctuary in the jail, with the mob after them. Then John Jay came upon the scene, exactly how or why does not appear; and peppery old Baron Steuben, and Mayor James Duane, reading the riot act, backed by a handful of militia. The mob proceeded to hustle the dignitaries and knocked down Baron Steuben, who lost his temper and called out, "Fire, Duane, fire!" The militia fired, seven rioters were killed, many were wounded, and the rest went home. That was the famous "Doctor's Mob," and the doctors got no sympathy. The governors denied their responsibility for the doings at the Hospital, sent in a bill of twenty-two pounds seven shillings tenpence to the breathless doctors, and, after collecting the money, closed up the buildings.

After that the governors seem to have come to their senses, and really determined to apply the Hospital buildings to their original purposes. At any rate, within three years the reform had been accomplished, and in January, 1791, the Hospital was again opened. Samuel Bard helped the starting and so did Malachi Treat.

The state of the New York medical schools has already been shown, as they struggled and bickered through those years. Indeed, though the men were good men and strong, the town made no progress as a medical centre

until the beginning of that nineteenth century of which we shall have so much to hear.

So Philadelphia and New York went their ways, and with them Baltimore and Charleston, in no manner remarkable during the closing years of the eighteenth century. But while such was the case beyond New England, Boston was being heard from once more, and out of the experience and wrack of the Revolution there were appearing there a set of men and measures destined to bear an honorable part in the history of our national medicine.

When the war ceased, in 1782, more than sixty years had elapsed since Mather and Boylston had said their say in the smallpox matter. Throughout the intervening time —the best part of a century—Boston had produced no physician of great note. To be sure, there was that enterprising Douglass, a man ignorant of the scientific spirit, though an industrious writer; then there had been various Clarks—five in successive generations—and James Lloyd, who was notable as a kindly man, well educated in London, a pupil of William Hunter, and, like the younger Shippen, a pioneer in midwifery in this country; but he was not a teacher or a writer, and the dim memory and admirable family portraits alone remain to recall him.

The local medical historians, Bartlett, Thacher, and Green, tell a long and readable tale of those eighteenth-century Boston doctors, but until the Revolutionary days few names are recorded that need live among us. With the close of the Revolution, however, there occurred two events worthy of recording,—the founding of the Massachusetts Medical Society and the establishment of the Medical Department of Harvard College,—and with these events are linked two or three names of more than local interest.

The Massachusetts Medical Society was not the first State or colonial medical society, but, with the exception

of the New Jersey Society, founded in 1766, it is the eldest of those now in existence.[1]

The more prominent men among the original members of the Massachusetts Society, whose numbers were at first limited to seventy, were Edward Augustus Holyoke, James Lloyd, Isaac Rand, Cotton Tufts, Nathaniel Walker Appleton, Aaron Dexter, and John Warren. The venerable Holyoke is worthy of recording, if for nothing else, because he lived to practise medicine at the age of one hundred. That century of his marks him out; but he did other things. He was born in Salem in 1725, and there he lived his life. He was graduated A.B. of Harvard in 1746. Like so many of his time, he was never graduated in medicine, but picked up what knowledge he could from his preceptor, Thomas Berry, and by his own reading and observation. He practised in Salem and was a good doctor. We saw how John Warren went there in 1774 to grow up with the place, hoping to succeed Holyoke; but that came to nothing. He lived there for one year and then went into the army; Holyoke practised there for fifty-four years after Warren left. He was a shrewd, able man with a native wit and capacity which must have stood him in the stead of learning, for he was much respected by his fellows, and had attained so considerable a place among them that when the State Society was founded, in 1781, he was made its first president.

It has been shown also how the war had stimulated medicine as well as many other branches of American endeavor, and this Massachusetts Medical Society was a direct product of that stimulation. The State had furnished a large number of surgeons to the army, they had journeyed through the land, made many acquaintances, seen a great variety of practice, and broadened their

[1] The facts in connection with all the old societies have been collected and admirably presented by F. R. Packard in his History of Medicine in the United States.

knowledge; so that on returning to the narrower things of civil life they felt the need of something better than the old routine and stagnation, and they banded themselves together for mutual improvement. One may well imagine how great must have been the benefit to those ancient men. We now, with our multiplied societies and hospitals and journals and books, our telephones and our railways and our high-pressure lives, can scarcely fancy the isolation of those eighteenth-century doctors: their small information, their pathetic searchings out, their simplicity; so we must believe that the State Society, the commonplace of to-day, was a very great and splendid and life-giving thing one hundred and twenty years ago.

The preamble of the act of incorporation which was signed by Governor Hancock on November 1, 1781, recites,—

"As such health is essentially necessary to the happiness of Society; and as its preservation or recovery is closely connected with the knowledge of the animal economy, and of the properties and effects of medicines; and as the benefit of medical institutions founded on liberal principles, and encouraged by the patronage of the law, is universally acknowledged: Be it therefore enacted," etc.

So we see that the first object of the organization was to encourage the pursuit of rational medicine. The act further provided for sundry officers, a seal, the right to sue and be sued, the election of members up to a total of seventy, and, most important of all, authority to examine candidates and grant a certificate of competence in medical knowledge; but the Society had no right to bestow or take away the medical degree.

This clause in the charter seemed at first to conflict with the rights of Harvard College to bestow medical degrees, but a committee of investigation showed that there was no clash of authority, and the relation of the Society to the

medical schools early became recognized, as it has continued to this day. A school under its own proper charter may bestow the degree, but that degree gives its holder no rights in the Massachusetts Medical Society; and if, on his applying for membership in the Society, a candidate is found unequal to the required examinations, he is refused admission. As we know, there is now no limit of membership, but admission to the Society has been the *sine qua non* of medical respectability in Massachusetts for a hundred years, and its ranks embrace most of the properly qualified regular physicians in the State. The Censors' examination is not a mere formality; it is a very real test—a fact so well known that rarely do candidates whose qualifications are not up to its requirements seek membership.[2]

Almost coincident with the Massachusetts Medical Society, the Harvard Medical School was launched. Like most undertakings of the kind, that was largely the work of one man,—of one man become an exponent. The times were ripe, and John Warren seized the opportunity —another Morgan or another Bard, as it were; this time found in Boston.

It is somewhat strange that Harvard College, so many years the senior of the New York and Philadelphia foundations, should have had no medical department until it was nearly half-way through its second century of existence. Various reasons are assigned for this; for many years it was little more than a theological seminary, and during the half-century preceding the Revolution Boston produced few doctors of the academic type, or of high scientific training, or filled with the spirit of teaching.

Some feeble reaching out towards the beginning of a medical school had been making for several years before

[2] Dr. S. A. Green has told the story of the Society in infinite and zealous detail. You will find it in Medical Communications of the Massachusetts Medical Society, 1881: A Centennial Address.

the war. Ezekiel Hersey, of Hingham, a graduate of the College in 1728, and a physician of considerable attainments, had foreseen the need, and at his death, in 1770, had bequeathed a thousand pounds to the College for a chair of anatomy and surgery; then his wife left an equal amount, and his brother, Abner Hersey, a Barnstable doctor, left five hundred more in 1787. So here was a sum amounting in dollars to nearly twelve thousand five hundred.

The mutations of time have brought it about that Harvard has to-day a Hersey Professor of the *Theory and Practice of Physic*, the Professor of Anatomy being the Parkman Professor, the Professor of Surgery being the Moseley Professor.

Then one John Cummings, a doctor of Concord, left five hundred pounds, in 1788, for a medical professorship; and William Ewings, of Boston, an additional thousand. These various sums became available not long after the end of the war, the one grievous regret of the Medical Department being the destruction of a considerable collection of medical works, anatomical cuts, and a couple of skeletons, which had been lost in the burning of the College Library in 1764.

It will be remembered that John Warren, the young army surgeon, returned to Boston in 1777. There he had been put in charge of the Army Hospital, which was situated in the West End, near where the Massachusetts General Hospital now stands. He seems quickly to have become well and favorably known in his profession, his conduct of the Hospital and his attainments as a surgeon being of the first order; and old American writers tell, with some awe, how he performed amputation at the shoulder-joint,—the first operation of the kind done in this country.

It was in November, 1781, that the Boston Medical Association—an organization whose useful function it

was to regulate physicians' fees, for which purpose it still survives timidly—voted to ask Warren to give a course of lectures on anatomy.

That started the interest. Warren gave the lectures, and gave them admirably. He was a man of force, and must have had much charm of manner. Nearly a hundred years later, old Jacob Bigelow, who had been one of his students, used to tell of the fluency and eloquence of Warren's lectures and the delight of his hearers. He knew his subject-matter, too, far better than did most surgeons of the day; for his army life, in charge of military hospitals, had given him abundance of operating, and he had been able to find material for his dissections and anatomical preparations.

Those early lectures were given at the Military Hospital and attracted a distinguished audience. Most especially President Simeon Willard and members of the College corporation were impressed, and were fired with the idea that here was a promising young man to put at the head of a medical school.

The war was now practically over; men were returning to the ways of peace, and Harvard proceeded to inaugurate the new era with this wise expansion. It was all humble and simple enough at first. The corporation and Warren got together, worked out the plan of a school, and in November, 1782, rules of procedure were adopted and Warren was elected Professor of Anatomy and Surgery. The next month Benjamin Waterhouse was made Professor of the Theory and Practice of Physic, and in the May following Aaron Dexter became Professor of Chemistry and Materia Medica.

These three men were for several years the only instructors in the School. The lectures were given at the College in Cambridge, a tedious journey from Boston in those days, and it was not until 1810 that the School was removed to Boston, where it rapidly increased in size and

influence. At the first some twenty medical students, together with the Harvard Seniors, attended the lectures, and the first class was graduated in 1785, with the Bachelor of Medicine degree.

Of John Warren, for very many years the most conspicuous surgeon in New England and a power for good in his community, some further word is needed. He was a man of somewhat delicate physique,—thought to have consumption in his youth,—and through life the victim of numerous ailments; but, like all the other successful physicians known to us, he was an incessant worker. Lacking the advantage of a European education, he proceeded early to make up for it, and throughout his life was a severe student. Acquaintance with the French medical officers of the Revolution impressed him with the need of acquiring their language; so in the midst of his other duties he studied French, followed the French practice, and bought their books, all of which stood him in good stead when he came to teaching; and he made Sabatier his text-book.

We know how his lectures impressed the dons in his early days, and his eloquence increased with his years. He talked without notes, to be sure, but he told things that interested his hearers,—a rare gift,—and he told them well. Like his friend Rush, he had a good voice and had learned to use it; indeed, he neglected none of those qualities which it is good to cultivate. He was interested in many things, too, like Rush, and took his part in the public questions of the day. He was not an author of many works, and little that he wrote has come down to us; but he was master of a simple, forceful style, and his few public addresses are still pleasant in the reading.

Like all surgeons of the day, Warren was a general practitioner, and to him, as to others in that century, it came to treat the yellow fever. He seems to have undertaken the work with fervor, and to have been one of the

first to convince himself that the disease was not contagious. Indeed, his work in investigating its causation and pathological anatomy was more than excellent, though mostly futile, as so much of that old work must needs have been.

John Warren did not live to a great age. He died in 1815, sixty-two years old, and a son took up his tasks.

It seems to have been a fine, honorable career. You will find nothing but praise of him anywhere written. He made no enemies and did work worth remembering,—two things that are true of few of us in this busy world.

Benjamin Waterhouse has been satirized by Holmes,—rather unjustly, it is said. He was a well-educated man, having spent some years in Europe among the other pleasures of his youth. Whether or not he was a pompous drone, who shall say at this late day? At any rate, he was a professor for many long years. Whatever else he did, or was, we must respect him for this, that he early seized upon the teachings of Jenner, and first among American physicians introduced vaccination to his countrymen in 1800. For this we may recall him, perhaps, if memory serves in hearing of so many.

What Aaron Dexter taught of chemistry we know not. The memory of the good man is rescued from oblivion by Holmes, who recounts a drearily familiar anecdote of one of his experiments; and truly, for us, that is the end of him.

That is not a very brilliant showing for the founding of the Harvard Medical School, out of which we fondly hope so much has come. Warren was the one star,—a good, strong, steady, glowing luminary. But the School got well on its feet without undue travail, and, struggling from small beginnings to better things, produced in 1790 one graduate, Nathan Smith, of whom there is much good to tell later.

So the eighteenth century ended, and as we look back

on it now, before going to other things and another fashion of men, we see that the world has moved somewhat since one hundred years before. Certain names have been given, — Boylston, Morgan, Shippen, Bard, Rush, and Warren; something to forward science had been done in Philadelphia, New York, and Boston; some few books had been written, some few good thoughts expressed; and though the century may seem flat and unprofitable, we must remember the times in which men lived and the agonizings which the infant land must needs endure through many struggling years.

CHAPTER IX.

THE NINETEENTH CENTURY. EARLY SURGEONS.

In the Centennial year of 1876 there was published in Philadelphia a little work of some three hundred and sixty pages, entitled "A Century of American Medicine." It may still be read with interest and wonder and some degree of regret. Five men wrote the essays which compose it. Three of them are dead. The first four articles are by distinguished clinical teachers, the fifth is by the ablest of our medical bibliographers.

The four clinical writers tell in kaleidoscopic detail the names and deeds of American doctors. It is a dictionary rather than a history that one reads; but the names and the deeds are all so good that one struggles painfully and vainly to select the best. It is evident that those writers were full of the national spirit of accomplishment, that they strove with great measure of success to tell us the things done and the names of the doers, little regarding those things of more vital interest,—the spirit of their heroes and of their times, the sort of men those heroes were, the sort of lives they led, their influence upon the people, their value to posterity. Listen to the summing up of the essay on surgery. It was written by Samuel D. Gross:

"Finally, let it not be supposed from what precedes that the American surgeon is a mere operator; if he ranks high in this particular, he ranks high also as a therapeutist. Nowhere, it may be safely asserted, are the great principles of surgery better taught, or better understood, than they are in this country. As a general practitioner, skilled in diagnosis, and in the art of prescribing, it is no presumption to affirm that he has no superior. If, as a body,

we are deficient in any particular, it is in the more refined and subtile portions of our studies; studies which, after all, are of no essential practical importance, and which, it is not too much to say, will in due time receive their just proportions."

Then, going on to tell of American success in the treatment of wounds as an example of our forwardness and excellence, he said, "Little, if any, faith is placed by any enlightened or experienced surgeon on this side of the Atlantic in the so-called carbolic acid treatment of Professor Lister." It was all a delightful eulogy of American men and home methods, a pæan of joy that we were what we were, and written in the very year of Lister's visit to Philadelphia and the famous demonstration of his stupendous discovery. Medicine and surgery were on the eve of the greatest revolution known to our science, and the prophet was in our midst, but he was without honor.

J. S. Billings, the fifth writer, the kindly but severe critic, said,—

"We have had, and still have, a very few men who love science for its own sake, whose chief pleasure is in original investigations, and to whom the practise of their profession is mainly, or only, of interest as furnishing material for observation and comparison. . . . Of the highest grade of this class we have thus far produced no specimens: the John Hunter, or Virchow, of the United States has not yet given any sign of existence."

Between these two estimates of the value of American accomplishments and the worth of American aims let each man choose. The words were written more than a quarter of a century ago, and we are hopeful that time has modified both views. But it is with an earlier period that this history deals; not with the immediate past and its lack of perspective, of which the writers told in that Centennial book.

Let us then attempt to see clearly the better men of the

first half of the nineteenth century, and, from the stories of a few conspicuous lives which reached out and touched and intermingled, try to build up a picture of the medicine of those times.

We have learned what the influence of Europe was upon the practice and teaching of the pre-Revolutionary days, especially the influence of Edinburgh and London, and how, after the war, there began to appear among us men who were of a new type,—a true American type; men who, without foreign training, began to see things and make inquiries for themselves; men of the type of Smith in medicine and Warren in surgery—purely American products. These and others continued to appear and grow and multiply in our country as time went on: coming in groups in the medical centres,—Philadelphia, New York, Boston, Baltimore, Charleston, and New Orleans; then spasmodically in the wilds,—Kentucky, Ohio, and elsewhere,—showing a steady growth, long unappreciated. For many years, of course, the influence of one or other Old-World centre was felt to a greater or less extent: first it was the English and Scotch schools, then those of Paris, then of Vienna; but as time went on, as knowledge spread and the European schools came nearer together, we began to hear less of the French influence or the German influence; to appreciate that science knows no geography, and that all faithful students are interdependent and must advance together. That last ideal state, however, has but recently begun to develop itself. In the early days there were found in Europe very eminent men and groups of men to whom we looked, and they doubtless did in great measure mould us, so far as foreign minds may mould.

There was, first of all, and pre-eminently first, that famous John Hunter of whom we have heard, whose influence has grown and spread to this very day. Slowly he was becoming known to Americans one hundred years

ago and was helping to shape their thoughts. Of him and of those others in his century a brief word has been said. That English influence continued, becoming less potent as time went on and other schools were sought, dividing our admiration. Then there came a time in the first half of the nineteenth century when Paris ruled supreme, and that era of French influence lasted some forty years. Indeed, as Osler has said, "The awakening came in France." [1] It was Bichat who voiced it to the thinking world,—a wonderful young man. He was born in 1771 and died in 1802. The year before he died he published his great work on general anatomy. In that he turned fiercely away from all those system-makers of his time and showed that the true seat of disease is not in organs or in fluids or in this or in that metaphysical thing, but in the tissues of which the organs are composed. Then he died; but his work had taken root, his words fell upon soil already tilled by Morgagni, by Haller, and by Hunter, and his views gave a lasting impetus to the study and understanding of pathological changes.

Then there were Corvisart, Dupuytren, and Laennec, the proper founders of the Anatomical School of Paris; Montpellier, who wrote the famous Pathological Anatomy on which he worked for thirty-four years; Andral, the indefatigable clinician and teacher; and Louis, beloved of American students,—the man of them all best known among us to-day, the patient exponent of the numerical method, the sympathetic friend and patron of our younger Jackson. Those are a very few of the names which were household words in the ears of our fathers.

If, eighty years ago, one had asked the name of the best-known and the greatest living American surgeon, the reply would surely have been, Dr. Physick.

Philip Syng Physick was born in Philadelphia on July

[1] The Progress of the Century (Medicine), p. 175.

7, 1768, and died there on December 15, 1837. He was a distinguished personage, he lived in modern times, he walked in the sight of men all his days, he was much written about, and he left behind him the report of many things accomplished; yet it is hard to learn much about him,—about the man himself,—and what one does learn is not thrilling.

To our twentieth-century thinking, Physick was the best-equipped surgeon of his generation. His father was a respectable Englishman, Edmund Physick, who held a small government appointment in Philadelphia in his early life, and after the Revolution became the agent there of the Penn family. His mother was the daughter of one Syng, a silversmith, and is said to have been a woman of much force of character. This commonplace couple seem to have held correct ideas of the value of thoroughness in education, and having from his childhood destined their son to be a doctor, they proceeded to give him the best possible preparation. Whether or not his own surprising surname put the idea of this profession into Edmund Physick's head, no man may say, but, like a true Englishman, he clung to the plan even against his son's earnest protest.

So the father began patiently at the bottom. He was well to do and could pay for what he wanted. Robert Prout, the local historian and principal of a Friends' academy, was induced by double fees to take young Physick into his family and to act as his tutor.

From the decorous and even tenor of Physick's adult life we are led to suppose that his well-balanced youth was equally uneventful. At any rate, no details thereof seem to have been deemed worth recording. He was a methodical person from first to last. From school the young man went to the University of the State of Pennsylvania, whence he was graduated Bachelor of Arts in 1785, at the age of seventeen. Thus it will be seen that

all his preparatory years were lived during the exciting times of the Revolution, and that when he came to take up his medical studies he found himself under the influences of men who had borne their part in that trying ordeal. Morgan died soon afterwards, but Shippen, Rush, and Kuhn continued their ministrations for many years longer.

Physick objected to studying medicine. He said that he had no taste for the work or the life, and his first sight of dissection at the Medical School and operations at the Hospital so disgusted him that he begged his father to let him off; but that sturdy person would not listen to the plea, so the lad yielded to the inevitable and the work went on. He was a student in Adam Kuhn's office for three years. The preceptor was at that time Professor of Chemistry in the College of Philadelphia, though later he went over to the University School,—this was before their union,—and Physick attended lectures at the College with the other lads. He was a faithful, scrupulous, toiling soul; something of a prig, I fear, and not popular with his mates. He does not seem to have worked with any special interest or intelligent view-point in those early days, but devoured readily whatever mental pabulum was offered him. When he was advised to study Cullen's "First Lines of the Practice of Physic," he learned by heart the whole of the dreary stuff, and he showed, as yet, not the slightest disposition to become a surgeon. It was a sound, painstaking intelligence, however, able and willing, and his friends foretold good things for him.

He probably picked up all that there was to learn from the undigested, rudimentary system of teaching of his day and the practice of the excellent Kuhn, and in 1789, when he was twenty-one, his father took him to London for further polish. There he fell on his feet and was made a man of, surgically. He had the rare good fortune to be taken into the family of John Hunter and to win the

regard of that great man. Anything more incongruous than an intimacy between the rough and tough old Scotchman and the precise, methodical, prim Philadelphian it is hard to imagine, but it is said that such an intimacy did spring up. They were both tireless students, devoted to science in their several ways. Hunter, with his wide-grasping mind and enthusiasm for facts, snorted contempt at the average commonplace men about him; and Physick, patiently bound up with the thing in hand, had thought for nothing else. So the two men worked comfortably together, and the rare dissecting skill of the pupil won the admiration of the master. Then Hunter had him made House Surgeon at St. George's Hospital. So far as I know, he was the first American to hold a position on the House Staff of a London hospital.

What man with brains in his head and hands to work withal could fail to succeed after two years of John Hunter and St. George's? It is told of him that while in residence at the Hospital he reduced a dislocated shoulder, "without the aid of an assistant or of apparatus of any kind," before the class. Just what that means does not appear, but we know that there were clever mechanics before the days of Kocher.

In all ways Physick seems to have behaved himself well at the Hospital, to judge from the testimonials to his "medical qualifications and correct deportment" given him by the authorities. Besides, Hunter wanted him for a partner, and it is hard to see why he did not accept the offer. Perhaps Hunter did not make it attractive enough. If he had stayed in London, Physick would have been the colleague of Astley Cooper, Abernethy, Carlisle, Home, and such others, as John Bell points out; certainly an enviable position for a friendless young American. But his carefully laid plans could not be changed; so, with kindly words from his warm-hearted chief, he went on his way,—this time to Edinburgh for a year's

study of medicine and the doctor's degree. That was in 1791. Before leaving London he received the license of the Royal College of Surgeons, and the Edinburgh M.D. followed in 1792. He was then twenty-four years old.

That was a remarkable preparation for the practice of medicine in the America of the eighteenth century. Including his college course, he had spent eleven years in study. Morgan is the only other American of the time who did as much, so far as I have learned; but there was genius in Morgan.

So Physick came home and settled down "to look for business," as the phrase then was. Three years passed before he began to find it, and three years was a long time in those days. We know how Cadwalader, Barton, Shippen, Morgan, and Rush stepped almost at once into a living wage; but Physick had few of those outward graces that attract.

Let us, then, look briefly at the young man starting under such auspices, who, beginning a professional life which was to last through forty-five years, was to leave behind him a reputation for surgical skill of the first order, and with the high-sounding title, "Father of American Surgery."

Like many other eminent American doctors of his day, Physick was weak physically. We have seen Rush and Warren fighting a feeble constitution all their lives and Morgan worn out in his prime. Physick had a wretched digestion always, and was the victim of a continually recurring "catarrh," whatever that may mean. Like many dyspeptics, he was pessimistic, reserved, and forbidding; shy, one would suppose from what is told of him, and devoid of every vestige of the sense of humor. He was of medium height, with pale, regular, classic features—what women call "interesting looking." He was very human, however, in his attitude towards genuine suffering; but, more than most surgeons, he was intolerant

of hysterics, prolixity, and humbug in his patients. One of the historians tells us that from his youth his want of imagination held him back from an open declaration and acceptance of revealed religion, and that his sad and abstracted manner was due to his doubts and inability to accept the true faith. Probably the real explanation was a chronic dyspepsia. In his daily routine he was a man of good sense, and his habitual reticence stood him in the stead of tact. He had small, delicate, nervous, facile hands. It was a pleasure to see him operate. He could not dance, though; he was heavy-footed; the biographer leaves us in no doubt about that. "Formally polite" he calls him, which sounds well enough.

Probably Physick contributed to his own prolonged ill health by his obstinate dislike of the rules of proper hygiene. He starved his body by small and infrequent meals, which was as well, perhaps; but he hated fresh air, cold water, sun, and exercise. When he felt ill, he shut himself up in a superheated room, and he slept in winter in a bedroom hermetically sealed and at a temperature of 80° F.

For all that, he accomplished a great deal in the way of work. Indeed, he worked as hard as do most successful surgeons. He kept no such hours as did Astley Cooper, whose vigorous frame seemed to defy the demands of nature for sleep and food, but he labored all of his waking life. He rose at four in the morning, wrote, breakfasted, paid visits, lectured, dined, received patients, visited some more, supped, and went to bed at nine o'clock. He would not allow himself to be called at night. That sounds like a fairly strenuous life.

He cared nothing for literature, for art, for politics, or for the thousand things that interest men. Nature was a sealed book to him; he regarded her only as she supplied drugs and food. After his student days he read little or nothing, even of medicine. He knew his own ability and

found himself a leader of surgeons, so he cared nothing for the observations and pursuits of other men. Those were the days of some very great ones in his profession, both at home and abroad. Valentine Mott in New York, McDowell and Dudley in Kentucky, and John C. Warren in Boston—to say nothing of some excellent surgeons in Europe—were doing things worth knowing and remembering; but, though Physick knew personally most of these people, he never kept in close touch with them, and lived a life sufficient unto himself. He was, however, too conspicuous a man and too good a surgeon to escape their interest, and he influenced them and others. Towards the end of his life Physick's aloofness and other peculiarities grew upon him. He became a very lonely old man, retired and somewhat abnormal, perhaps, at the end; and the instinct of the surgeon and anatomist forsook him so far that he left positive orders that no post-mortem examination of his body should be made, that the corpse should be preserved until decomposition had set in, that he should be buried in a double coffin, and that his grave should be guarded for six weeks after his burial.

Physick was a penurious man, but no extortionist. Indeed, his fees, even at the height of his fame, were so much smaller than those of his professional brethren as to excite reproach. He inherited money, lived simply, and left behind him a large fortune. In many cases he refused to take any fee; the most notorious example of this being in the case of John Marshall, the great Chief-Justice. Any one among us to-day who has heard of Physick probably connects him with Philadelphia and Chief-Justice Marshall's thousand stones in the bladder. We all know that, if we know nothing else about him. That he refused a fee in the case is not uninteresting.

Now, Physick had his Fidus Achates — his nephew, John Syng Dorsey, who died in 1818, only thirty-four years old. Dorsey seems to have been many things that

Physick was not: buoyant, sanguine, enthusiastic, popular, vigorous, and devoted to his more famous uncle. He wrote a book on surgery which was good and widely circulated; it was a compendium of Physick's teaching, and preserves for us our only satisfactory knowledge of the latter's opinions and method. The younger man was deeply mourned, and his death was a cruel blow to the solitary, pathetic uncle.

When we come to follow the life of the "Father of American Surgery" we find very few events to record, and there is in it no special lesson for us. He came home to begin practice in 1792, and in 1795 he began to find work. For three years he walked the streets of Philadelphia in despair. Finally he persuaded an older friend, a Mr. Prestman, to employ him to take care of his family at a salary of twenty dollars a year. Several other fathers of families followed Mr. Prestman's example, and in this rather unsatisfactory fashion the young man began to earn his salt.

Physick's biographer takes us through many printed pages, and exhausts eight thousand words in explaining that his hero, fresh from his studies and pining for fame, did not hold a position in the Bush Hill Hospital, which was established by Stephen Girard and Peter Helm for the yellow fever victims in the famous year 1793. Other writers had been in the habit of saying that Bush Hill and this epidemic gave Physick his chance, but it seems they were mistaken. He was elected physician to the Hospital, but resigned the next day because he did not wish to serve with one Devèze, a Frenchman and a newcomer, who appears to have been a very respectable and efficient person, if we may judge from the record of his most honorable Hospital service.

In spite of his refusal to take the Hospital work, Physick remained steadfastly in town during this and the subsequent yellow fever years, doing his duty among the

poor. Indeed, he himself had the fever twice,—in 1793 and 1797,—and the second time carried the depleting treatment so far as to be bled to the extent of one hundred and seventy-six ounces.

He did his duty during those years faithfully and efficiently; but, more than that, he followed the teaching of his master, John Hunter, and studied his cases, making frequent autopsies and taking careful notes. Those notes formed the basis of a systematic professional journal which he continued until 1810. His writings have never been edited.

In 1794 Physick was elected a surgeon to the Pennsylvania Hospital, and to that year, therefore, we must assign the beginning of his successful career. During this same period he was for a short time physician to the Philadelphia Dispensary.[2] Then, in the yellow fever epidemic of 1798, the same in which young Smith died, he took service at the Bush Hill Hospital—Devèze being no longer there—and did most admirable work. All say that after this he was regarded as a man of mark and was very highly thought of by his fellows. They made him President of the Academy of Medicine that same year, and Rush, in his famous essay, frequently quotes him. The Bush Hill Hospital managers appreciated his remarkable talents and usefulness, and on his retirement presented him with some handsome plate as a "Mark of their respectful approbation of his Volunteer and Inestimable Services."

Two years after the plate episode this exemplary young man succumbed to the common lot. He fell in love and married. The lady was Miss Emlen, "highly gifted and

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[2] Necrological Notice of Philip Syng Physick, M.D., delivered before the American Philosophical Society by William E. Homer, M.D., etc.; published in Bell's Select Medical Library. A Discourse Commemorative of Philip Syng Physick, M.D., prepared by appointment of the Faculty and Class of the University of Louisville, January 12, 1838, by Charles Caldwell, M.D.

talented," and "of this union four children were the fruit." Beyond that we are told nothing further than the statement that Physick was a "faithful, domestic character."

But, more important to us than wife and the resultant fruit, in the year 1800 he was asked to lecture on surgery to certain students in the University School. The lectures were encouraged by Rush, who attended and applauded; and here we light upon a bit of uncomfortable professional gossip. Shippen was the Professor of Surgery, that chair being combined with Anatomy and Midwifery. Caspar Wistar was a good surgeon and was adjunct to Shippen. Rush and Wistar were not on friendly terms, and the veteran politician, Rush, pushed Physick forward as Wistar's rival. The trustees of the University were made to see that so important a chair as that of Surgery should be held by a man devoted to that alone. Physick's admirable special lectures were attracting more and more attention; then who so available for the professorship of Surgery? So he became professor in 1805. One regrets Wistar's disappointment, if it was a disappointment. He was seven years older than Physick,—an able, kindly man, a zealous student, and a successful, popular teacher; and it would be pleasant to hear more of him, if there were but time.

Physick was Professor of Surgery for thirteen years. It was during this period that he made his great reputation and earned his title. We may almost regard him as the mouth-piece, in America, of John Hunter. For the first time here students heard something more than theory and a mere setting forth of operations and technique; they were taken to the root of things and made to observe, deduce, and record.

Physick lectured in monotonous style and read his lectures from carefully prepared manuscript,—the same year after year; but his statements were so sound, his obser-

vations so concise, and his conclusion so inevitable that a great impression was made. His hearers had to think; and when a man has arrived at a clear conviction from inference, he is apt to think well of himself and of his preceptor, too. And so those hearers went out into the world and spread the fame of the great professor.

These lectures were Physick's most conspicuous contribution to surgery; but, most unfortunately, they were lost after the telling. He should have published them. He lived nearly twenty years after retiring from the chair; but, so far as known, the manuscripts were never revised for the press and have probably long since been destroyed.

Aside from his great work as a didactic teacher, he was widely famous as a brilliant hospital operator and clinician. His deftness with the knife was very remarkable even in those days, when ether and chloroform were unknown, and when every second counted to the anxious surgeon and the agonized patient. He was an able mechanic, too. His facility with apparatus and in that line of work which we now call *Orthopedic Surgery* was very brilliant and final. His long training in general medicine, also, had given him a poise and experience in dealing with constitutional diseases which was of the greatest advantage to his surgical work and was rare in that age. Like most able surgeons of the time, he was conservative, and was thoroughly in accord with the teaching of John Hunter: "to perform an operation is to mutilate a patient we cannot cure; it should therefore be considered as an acknowledgment of the imperfection of our art."

Some of Physick's contributions to treatment seem now of a rather humble nature. He had a sound practical appreciation of the nature of wound healing, and much of his teaching anticipates that of Paget and Gamgee. He was constantly interested in the treatment of fractures, and his modification of Desault's splint for fractured thigh is still in common use. His appliance for correcting the

outward displacement of the foot in Pott's "fracture" seems to have been similar to, and to have anticipated, that of Dupuytren. He was also successful with dislocations, but did not elucidate the mechanism of shoulder and hip luxations, his practice being to bleed the patient to fainting and then to reduce by the ancient barbaric methods.

It was *lithotomy* that gave him his greatest fame. With the possible exception of Dudley, he cut for stone in the bladder oftener than any other American surgeon of the century, and invented various ingenious devices to facilitate and render safer the operation. In other branches of genito-urinary surgery he was also a past master. His treatment of ununited fractures by means of the seton added greatly to his fame, strangely enough; and he devised a successful operation for the closure of fecal fistula.

We noted in passing that Chief-Justice Marshall came to him for an operation. Both of these distinguished men were old at the time,—Physick prematurely so. The aged statesman is said to have endured the operation with remarkable courage, and the case is almost unique in surgical annals for the immense number of calculi removed.

These surgical feats and his teaching brought fame to Physick,—a fame which seems to us in these days almost out of proportion to his deeds. He should have put his enormous experience and surgical knowledge into print. For the lack of such a book he has become a myth for us,—for those of us to whom he is known at all. The training by Hunter, the mind stored with knowledge, the clear intelligence, the remarkable skill, were soon lost. They died with the man himself.

And of the man's life there is little more to say. He made a grievous mistake and cut himself off from his greatest usefulness in 1818.

Young John Dorsey died in that year. He had been the Professor of Anatomy, and most successful. After his nephew's death Physick was persuaded to give up teaching surgery, in which he was a tower of strength, and to take the chair of Anatomy, where he became a feeble reed. He was too long out of practice. His skill in anatomy had left him and he never got it back. He was too old for change, but he clung to the uncongenial work for twelve weary years before he resigned. Then, with failing health and sadly, he gave that up, together with most other work, and began to withdraw from practice and an active life.

One might take Physick for a text and point a moral,—the unwisdom of an existence with but one idea. The salient thing with him was practice. He knew nothing else. With that gone, he existed, dragging on through five solitary, useless years, and then he died.

His contemporaries felt in him the great man. There must have been something which has not come down to us. He was eulogized throughout the land; from Boston to Louisville, all were agreed. He had been long out of the race; no bitterness remained; all who knew him spoke well of him. It was certainly *de mortuis nil nisi bonum,* and they buried him as the "Father of American Surgery."

From Physick we turn at once to a man of whom most truly it must be said that he was not without honor, save in his own generation,—Ephraim McDowell; and from Philadelphia we plunge suddenly into the wild backwoods of the young Middle West.

There was a fine type of man,—a rare man. It is a pity we know so little of him. America and the world owe him a great debt, only recently appreciated. For years he went unknown. Honest Stephen Williams published an "American Medical Biography" in 1845, fifteen years after McDowell's death, and did not so much as refer to

him, though he found place for dozens of simple, worthy souls like himself.

One would fain have known that delightful McDowell, for he was the very best type of American surgeon,—a cultivated man, living in the wilds, turning his back upon the old civilization, bearing the best science of the times to those rough, virile pioneer folk. One hundred years ago Danville, in the very centre of Kentucky, was a far-distant place, in a rude country, little cultivated as yet, with forests and bridle-paths and Indians, even, for miles about. There, any day, you might have seen young McDowell riding rough through the woods to visit his patients. It was a fine figure of a man,—rising six feet, broad-shouldered, erect; a splendid horseman; ruddy, clean-shaven, of course, after the fashion of the day, with keen, sparkling black eyes and a ready smile. He could ride all day and all night without a murmur, and take your leg off at the end of it without winking. They relate a story of his vigor when a student in Edinburgh. A young Irishman came along, telling of his own prowess in running and jumping and many other things that they do in Ireland. He challenged the whole class to make a match for him, and they chose McDowell.

The first race was sixty yards for a purse of ten guineas. The American let himself be beaten. A few days later there was a second race for two hundred yards and a hundred guineas. As we should say to-day, McDowell "wiped the ground" with the talkative young man from Ireland. How modern sporting ethics would regard "throwing" that first race is an interesting question.

Ephraim McDowell was born on November 11, 1771, in Rockbridge County, Western Virginia, and came of that sturdy Scotch Presbyterian stock which has done so well by this land of ours. His father was Samuel McDowell, an important man in his place,—lawyer, judge, and legislator. In 1755 he had married a Miss McClung, also

Scotch and Virginian. To these two were born twelve children, of whom Ephraim was the ninth.

After the Revolution, when Virginia was settling the claims of its veterans and was allotting lands out of its Kentucky territory, Samuel McDowell was sent—one of a Commission, in 1782—to adjust those Western grants. So he came to Danville and settled there, and was appointed Judge of the District Court; and there he lived out his days, dying, indeed, in 1817, after his son had done his greatest work.

It was in that vigorous frontier life that young McDowell grew up, getting what rambling education was to be found in the "Classical Seminary" of Messrs. Worley and James, who migrated between Bardstown and Georgetown, and seeing that strange Old-World life—it seems to us now—among gentlemen pioneers, farmers, woodsmen, hunters, Indians, and negro slaves, of which the simple old novelists used to tell, long years "before the war."

So McDowell came to be an active, wholesome, clear-headed lad, with a smattering of book-learning, a little Greek and Latin, and a keen love of nature. He was given to shooting and riding more than to study, but he did acquire some acquaintance with good literature, which later he came to love with a sure taste and devotion. He knew good writing, but his own composition was rough and obscure always. It was like his love of music. He rejoiced in that, but his violin playing was a penance to his devoted family.

He did not settle down to serious work until he was almost a man grown. His father was well to do and busy, and the son found occupation enough in helping him and following the rough country life. When twenty years old, however, he concluded to study some profession, and, seeing the opportunity for a good doctor in his own rapidly growing State, decided on medicine. Perhaps, as Gross says, it is a pity he did not go to the Philadelphia School;

though I fancy that would have been no better than the course actually followed. He wanted a preceptor to begin with, according to the fashion, and there being none competent near Danville, he went back to his old home in Virginia and entered the family of a Dr. Humphreys, of Staunton, about thirty miles from his native place. Humphreys was a graduate of Edinburgh, and is memorable to us only as McDowell's early chief. He was a busy, self-centred man, who was struggling with a large, scattered practice, and had little time for his occasional pupils. That was a pity, because McDowell wasted two years with him. Neither master nor man was a student, and without the stimulus of competition the lad's work was desultory enough. Finally his shrewd old father grasped the situation and sent him off to Edinburgh, by Humphreys's advice, to make up for lost time.

The old Scotch school was never stronger than during the last ten years of the eighteenth century, and McDowell was there in 1793 and 1794—memorable years, when we turn our eyes back to Philadelphia and recall the great work of Rush and the sad trampings of Physick "looking for business."

In Edinburgh, at last, McDowell got his inspiration. It comes late to many a strong man, and it came late to him. Gregory and Black and Munro (the second) were the great men there, — popular and eloquent teachers. Speaking of this period in McDowell's life, a memoir writer says, "We may imagine, moreover, that one just fresh from the wilds of America must have felt no little restraint, and even embarrassment in the polished and refined circle of students in the modern Athens." Fancy the joy of those polished students could they have heard that. We know fairly well what sort of young barbarians were the medical students of a hundred years ago, and doubtless the jolly Kentuckian did find some trouble in keeping his end up with them.

But John Bell was his hero.

Bell was not as yet giving the lectures on surgery at the University, but McDowell took one of his private courses, and rejoiced in the fact for the rest of his life. It was later that Bell became Professor of Anatomy, Surgery, and Obstetrics, and wrote his "Principles of Surgery," which was being published from 1801 to 1807; but in those earlier years he was doing his greatest work as a teacher, and McDowell had the full benefit of his fertile discourses. The modern system of clinical teaching was then little known, but Bell did far more of a certain sort of clinical lecturing than most men of his day. He operated in a masterful fashion and expounded lucidly while he worked, meantime keeping the students constant in their attention by skilful questioning and requests for their assistance. He was certainly the most popular teacher of his time in Edinburgh, his secret being that his thought was all for the improving of his pupils and not for the airing of his own hobbies and opinions. All things connected with the art of obstetrics and the diseases peculiar to women interested him especially. He was a very human person, and in his dissections used to point out how frequently woman's pelvic organs were diseased and how impotent surgery was, as yet, for the relief of those conditions. He would commiserate especially the unfortunate women afflicted with ovarian tumors, and lament that these growths, usually so benign in structure, should destroy life by their great and obstructing size merely. He was an unusual man with an unusual method, and he fired our generous young American with a love of his profession and an enthusiasm for study which increased constantly through life. Bell taught his students how to work, and that is a knowledge which, once acquired, is never lost.

Those were very important years in McDowell's life, and he never tired afterwards of telling the tale.

He had a chum at Edinburgh, — an American, afterwards distinguished,—Samuel Brown, who became a successful teacher of medicine in the Transylvania University. He was a brother of the well-known James Brown, our minister to France.

One would be glad to linger over this period in McDowell's life. He was surrounded by men of his own kind, and, being without a college education at home, Edinburgh became to him truly an *alma mater*. But he was coming on in years, the paternal purse was burdened with eleven other demands upon it, and so it was incumbent upon him to begin making his way. We see that his years of study were few,—far fewer, indeed, than Morgan's or Rush's or Physick's or some others; but, even so, his time, such as it was, was well spent after leaving good Dr. Humphreys—far better spent than that of the great majority of American students of the time.

It was a pity that he had to go home when he did (early in 1795), for he could not complete his course and qualify for the doctor's degree. As we have seen, the doctor's degree was a rare prize in America one hundred years ago. Men practised without it, none hindering, and their friends gave them the title by brevet.

McDowell had been correct in his prognostication that there would be a wide field in Kentucky for a good doctor. He went home at once, to Danville, and there he lived ever after, from the outset wellnigh swamped with a great burden of practice. For years he met with almost no competition. The reputation of good work done with John Bell preceded him, and, until Dudley came, years afterwards, there was no other surgeon in the State. Indeed, his labors covered much of that region known as the Middle West, and his excursions took him into Ohio, Tennessee, and places even more distant.

Of course he married (that was in 1802), and had children,—eight of them. His wife was Sarah Shelby,

daughter of the Governor of the State, renowned for her beauty even in that country of beautiful women.

All these facts we must make a note of: how this young McDowell came of good stock, was the son of an able father, was unusually well educated for his place and time, was connected by marriage with one of the most distinguished citizens of his State, and was famous over a great region for his professional attainments. We must make this note because, later, when his great work was published, it was sneeringly said that what was related therein was untrue, for such things could not come from an ignorant, unknown backwoods doctor.

In 1809, when thirty-eight years old and fourteen years in practice, Ephraim McDowell performed ovariotomy. It had never been done before. For centuries surgeons had regarded it as impossible; but out of the American wilderness came the pioneer to show the way.

It is difficult for us at the present day to estimate what this operation has done for women. Peaslee, writing thirty years ago, stated "that in the United States and Great Britain alone ovariotomy has, within the last thirty years, directly contributed more than thirty thousand years of active life to women." But when Peaslee wrote ovariotomy was in its infancy. The development of modern surgery has increased its possibilities almost beyond computation; and it is probably well within bounds to assert that by this operation, in the United States alone, there are annually added a million years to the lives of our countrywomen.

In the autumn of 1809 McDowell was consulted by a Mrs. Crawford, the subject of a large ovarian cyst. She deserves some share of our gratitude. Here, we are told, was the case he had been waiting for. The teachings of John Bell had sunk deep in his mind, and he had the courage which that great surgeon lacked. Mrs. Crawford was a woman of unusual vigor of mind and body, and

McDowell put the case plainly to her. She understood that the operation was an experiment, that it had never been done before, and that the danger was great; but, on the other hand, that the permanence of the cure was certain, and that, without operation, her own early death was equally certain. In the face of these facts she decided to have it done. One must remember that this was before the days of ether; and for the benefit of the layman reader it must be explained that ovariotomy implies opening the peritoneal cavity, and that one hundred years ago the peritoneal cavity was a *terra incognita* to surgeons, for its exposure was supposed to mean peritonitis and death. Antiseptic surgery was not born until nearly sixty years thereafter.

But McDowell did not go to work without encountering some opposition, and that from an unexpected quarter. His nephew, James McDowell, who had been educated by him and had recently returned home from the Philadelphia Medical School, was with him at the time as junior partner, and his opinion was entirely against operating. We must remember that he was fresh from the influence of the cautious and conservative Physick, whom we cannot conceive of as stepping off into any strange, unexplored fields. The younger McDowell was, however, persuaded to assist by the consideration that, should the patient die, his uncle would bear the responsibility, and should she recover, he himself might absorb some of the reflected glory.

Mrs. Crawford drove sixty miles to McDowell's house and was operated upon there. No preparation of the patient was made beyond giving her a huge dose of opium. The account runs quaintly:

"The patient being on the table, I marked with a pen the course of incision to be made; desiring him (nephew James) to make the external opening, which in part he did. I then took the knife, and completed the operation, as

stated in the Medical Repertory. Although the termination of this case was most flattering, yet I was more ready to attribute it to accident than to any skill or judgment of my own; but it emboldened me to undertake similar cases; and not until I had operated three times—all of which were successful—did I publish anything on the subject. I then thought it due to my own reputation and to suffering humanity to throw all the light which I possessed upon diseased ovaria."

That is an interesting picture, worthy of Rembrandt. The rough "surgery" of the frontier doctor, the courageous woman mounting the operating-table, the forceful, determined man daring to risk another's life in a fashion never before attempted,—any man dare risk his own,—and the timid assistant, shrinking from putting forth his hand into the unknown. We have seen, from McDowell's own words, how he was obliged to take the knife himself, and we may well imagine the relief of nephew James. The operation seems to have been done at a maximum of speed and with a minimum of shock. The patient made a rapid recovery and survived more than thirty years.[3]

For a time McDowell said no word about it, and among the ignorant country people of the region the meaning of it all was as nothing. He waited three years, when he had another equally successful case, and the next year another. Then he was induced to tell what he had done. He was induced with difficulty, for he was a modest man and thought three successful cases insufficient; but his friends, who knew, thought differently, and at last persuaded him with the argument that he owed it to his old master, John Bell, to show how that early teaching had borne fruit.

Unfortunately, McDowell had never kept any proper

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[3] Eclectic Repertory and Analytic Review, vol. vii. p. 242, Philadelphia, April, 1817.

clinical records of his cases, so that the publication was very unsatisfactory in form, though the substance was all there. Finally he drew up a sketch of his three cases, referring to his ledger for the dates and to his memory for the details. The account is short and carries conviction. A copy of this paper was sent to Bell in Edinburgh, but that surgeon never received it. He was ill in Italy at the time and died there.

Another copy of the report was sent by William A. McDowell, his nephew and a physician, to Physick in Philadelphia, with the request that if found worthy it might be published in some medical journal. Physick treated it characteristically; perhaps we should say, cavalierly. He suppressed it, or, at any rate, he ignored and did not publish it. There is an interesting subject for reflection. The "Father of American Surgery" threw away the chance of proclaiming the greatest gift to surgery ever yet made in America. He did not act maliciously or from jealousy. He was merely obstinate, contemptuous, or shall we call it dull? Doubtless he thought McDowell an ignorant person who was trying to impose on him. He was so discourteous as not even to acknowledge the receipt of the paper.

William McDowell, the loyal nephew, was, however, not to be discouraged, even by a "Father of Surgery." He was a Philadelphia graduate himself, and found other means. He took his story to Thomas C. James, the Professor of Midwifery, and got a courteous and ready hearing. James was a fine type of the able, cultivated physician, free from guile and generous to quixotism; the most beloved and popular medical teacher in Philadelphia. He saw the meaning of this new thing, and appreciated that that had come to pass which for centuries surgeons had hoped for in vain. Supplied with copies of the cases, he promptly published them in the *Eclectic Repertory*, of which he was an editor, and then told his classes and the

profession what he had heard. But it all went for naught. The published cases were unnoticed or were disbelieved. Indeed, so slight was the impression made that four years later, in 1821, the distinguished Yale professor, Nathan Smith, repeated the operation and reported it as his own, in perfectly good faith.

That account sent to Bell got about, however, and caused much comment of one kind or other. For a time the paper lay unopened; then, upon Bell's death, it fell into the hands of a Mr. Lizars, an Edinburgh surgeon, who was much impressed by it. Unfortunately for Lizars, he was unskilled in diagnosis; but his lack of skill led to the publication of McDowell's paper. Lizars had a patient of enormous girth, from whom he now proposed to remove an ovarian tumor; the patient submitted and the incision was made, when, to the horror of Mr. Lizars and the grievous discomfort of the patient, it was found that her complaint was simply fat. In justification of what seemed to be so unwonted a performance, Lizars published McDowell's paper.[4]

He, at least, seems to have believed the reports, but most authorities were either silent or contemptuous. It is not a pleasant chapter in medical annals, and shows animus which we like to believe our latter-day scientific spirit has obliterated. Because a man has done a task in which you have failed, is that any reason for calling him a scoundrel or a liar? That is the meaning of what happened to McDowell, and it has happened in the world of science before and since. I am afraid we are all very human. Jenner and Morton and Lister and Pasteur were subjected to the ignorant abuse of men successful in their own fields. There are two kinds of scepticism, the honest and the stupid. One man is a sceptic because he has seen the shattering of many glorious castles in Spain; but he

[4] Edinburgh Medical and Surgical Journal, vol. xxxii., 1824.

reserves his verdict, and is ready with open mind to give his opinion after the arguments are heard. But alas! the stupid sceptic is quite as common; the dull, jealous man, who prides himself on disbelieving, without inquiry, whatever he hears, and calls upon the world to applaud his shrewdness.

James Johnson, the editor of the *Medico-Chirurgical Review*, of London, belonged to the latter class. He was cheap, too, and wrote of McDowell's first case, "Dr. Mac visited the patient at the end of five days, though she had come to his own residence to have the operation performed. He found her engaged in making her bed. She soon returned to her native place quite well. *Credat Judæus, non ego.*" "A back settlement of America—Kentucky—has beaten the mother country, nay, Europe itself, with all the boasted surgeons thereof, in the fearful and formidable operation of gastrotomy, with extraction of diseased ovaries." "We cannot bring ourselves to credit the statement." Such were some of the comments of the wise men of Europe. Then there were others who attempted to show that McDowell could not rightly claim precedence. These statements have been carefully analyzed and refuted by S. D. Gross, who demolishes the claims of earlier operators by showing that the operations were undertaken for other conditions, or that ovaries were merely cut down upon without being removed.

One source of error which even Gross has not pointed out is the modern misuse of the term *ovariotomy*, confusing it with *ovariectomy*. For instance, the famous operation of L'Aumonier, of Rouen, performed in 1776, was literally ovariotomy. He cut down upon and opened an abscess of the ovary; but he did not remove the organ, and that is what ovariotomy has come to mean in modern parlance.

After all, the controversy soon ceased for want of the fuel which McDowell refused to supply. He was a quiet

man who was willing to let his deeds speak for themselves with posterity. He did thirteen ovariotomies in all; but, unfortunately, we cannot be sure of his mortality-rate, though we know that eight of his cases recovered.

Nine years after his first reports he saw fit to publish a vindication of his work, and addressed it to the physicians of the West, more particularly to the medical faculty and class at Lexington, Kentucky. This vindication is merely a résumé of his previous articles, and, though interesting, was not needed. Slowly indeed the greatness of the thing he had done came home to the profession; other men followed in his footsteps, but timidly at first; and it was not till Lister's time that the practice came universally to be applied, until to-day, with our modern methods, ovariotomy has become one of the most useful, most common, and safest of the operations of major surgery.

Of course, McDowell's surgical practice covered other fields, and in many of them he was successful, though not remarkable. He was a cautious and safe operator, following the best opinion of his time. Like Physick and Dudley, later, he was a distinguished lithotomist, and two years before his death had collected a total of thirty-two cases without a death. Like Physick, too, he had a very conspicuous man among his lithotomy patients,—James K. Polk, afterwards President. Polk was an illiterate boy when the operation was done; and his letters to McDowell at the time are interesting when compared with a letter to the same correspondent, written fourteen years later, when he had partially educated himself and was a Representative in Congress.

McDowell had the courage and perseverance to become and remain a good anatomist, and that by persistent practice in dissecting. In some fashion he managed to secure subjects for such work, and he not only insisted that his pupils should constantly dissect, but whenever he had a

major operation in prospect, he always rehearsed the appropriate anatomy on the cadaver.

Though broken in health before old age by reason of his incessant toil and grave responsibilities, he kept up the fight and extended constantly his multifarious interests. He was not altogether unknown or neglected in the East as time went on. Even before his first abdominal section the Medical Society of Philadelphia sent him its diploma, in 1807; and in 1825 the University of Maryland made him an alumnus with the honorary M.D. That pleased him mightily.

As he grew older he found time for more reading, since money had been earned and he had partners to help him. Not only did he read all that was then produced by contemporary medical writers, but he was a capital Latinist and Grecian and a delighted student of all good literature. Except his one great accomplishment, he produced nothing more that has come down to us; but let that suffice.

A kindly, big-souled optimist, he went through life, demanding little of the world and giving much. In his later years Dudley came to divide the honors with him in that Western country, but he felt no jealousy and recognized the superior equipment of the younger man.

He died, and the memory of him was forgotten, almost, as also that work of his, accomplished two generations before its time. Other men and other countries came to be looked to for the thing that he had first done so well; but *tempus omnia revelat,* and at last McDowell's thoughtless countrymen, even, have come to see that on our frontier, a hundred years ago, there lived one of the greatest of American surgeons.

CHAPTER X.

THE NINETEENTH CENTURY. EARLY SURGEONS (CONTINUED).

We have had some glimpse of two of our early surgeons, Physick and McDowell, and of their predecessors, Jones, Shippen, and John Warren. Our annals name three other men whose work was done largely in the first half of the nineteenth century,—Mott, John C. Warren, and Dudley. They were all very eminent in their time, and their influence for good was greater than we are wont to realize in these latter days. There were many others at whom we must glance, but those already named were the most conspicuous.

Two things about all these men and about their disciples and followers are continually salient, their daring and their ingenuity,—traditional American traits. As Billings says, they may not have contributed many great things to the sum of human knowledge, they may not conspicuously have advanced science in the narrow sense, nor devoted themselves to experimental research—those are the deeds and pursuits of a wider and more leisured civilization, reserved in our country for modern times and the twentieth century; but they did show the world how to apply the knowledge at command, that desperate cases need desperate remedies, and that theory avails little without the courage to put it into practice. So we must think of those early years as producing men of unusual resource, ingenuity, and courage; the best of them well educated and putting into service the best teaching of the Old World.

But at the same time, in all fairness, one must not lose sight of the fact that the great mass of our doctors,

though often devoted, hard-working, and faithful men, were sadly undereducated. They had the ingenuity and the courage, perhaps, but not the knowledge; so that many grievous sins against nature must be laid to their account, though occasionally some one man might hit upon a brilliant discovery. That class of men—able, honest, but untrained—is rapidly disappearing from among us, thanks to the growth of the scientific spirit, and the country is not now lacking in qualified doctors, with a tendency, let us hope, to constant improvement. But there still remains with us, and in larger measure than other countries know, a great class of specious, dishonest, and untrained men whom our laws do not reach. Of such it is needless to speak further here, beyond making this note in passing, that large numbers of unthinking mankind always have liked and always will like to be cozened, and that when osteopathy, Christian science, and similar delusions have passed from us and from memory, other forms of quackery and pseudo-science will arise to supply the demand. Wherever true science fails, still struggling to solve great problems, there humbug steps in and claims its victories.

Among those early surgeons and great teachers none is better known to us by name than Valentine Mott. His long life seems almost to have made him a modern, for he died after the war between the States; but his birth date was in the eighteenth century and his best work was done in the generation of our great-grandfathers. His story has been eloquently told by a famous American surgeon,[1] whose formal phrases are still pleasant in modern ears.

Valentine Mott was the great New York surgeon seventy-five years ago. He was born at Glen Cove, Long Island, August 20, 1785. His father, Henry Mott, was

[1] Memoir of Valentine Mott, M.D., LL.D., by S. D. Gross, M.D., LL.D., Philadelphia, 1868.

a respectable physician who lived a long life and died in 1840. The Motts were Quakers.

The great surgeon was of a quiet, even, kindly temperament, influenced, doubtless, by his Quaker training, though in his old age he became a communicant in the Episcopal Church. He went to school in Newtown, where his father lived at that time, and, like his distinguished Boston contemporary, Jacob Bigelow, he was so well grounded in Greek and Latin that he continued his love for their great classics, and read them so long as he lived. He did not take a degree in arts at any college, but worked on at home, and began the study of medicine in 1804 at the age of nineteen. Valentine Seaman, his kinsman, a well-equipped man and a surgeon to the New York Hospital, was his preceptor. While living with him Mott took the usual two courses of lectures at the old Columbia Medical School, and in 1806 was graduated thence with the M.D. degree. Such was the inadequate practice of the time, not yet progressing beyond what we saw in Philadelphia some thirty years before.

But his subsequent training was interesting. He went abroad, studied with great men, and became acquainted with many distinguished persons and places and things.

During this visit all his time was spent in England and Scotland, and one feels that such experiences had much to do with shaping his career. The two years spent in Great Britain were more full of variety and general interest than falls to the lot of most students. Mott went provided with excellent letters of introduction, and met and knew many men outside of his own profession.

Before this visit he showed no evidence of any great interest or skill in surgery, his graduation thesis itself being "An Experimental Inquiry into the Chemical and Medicinal Properties of the Statice Limonium of Linnæus."

It was in the spring of 1807 that Mott reached London,

and he was twenty-two years old. That was two years before McDowell's first ovariotomy, Physick was then a rising surgeon and lecturer, the Revolutionary Warren was still in mid-career, and John C. Warren was beginning his professional life in Boston, in association with his distinguished father.

In the first decade of the nineteenth century London was rich in famous surgeons; indeed, surgery was then in the ascendant there. The life and work of John Hunter were still recent, and the impulse which he had given to science was apparent most especially in his own field, for his pupils were making themselves felt. Of all the surgeons then active in London, Astley Cooper was becoming the most conspicuous, and there were also his old master, Cline, and Abernethy, Haighton, and Charles Bell. Cooper was the favorite among students. His infectious enthusiasm, his charm of person, his untiring industry, and his lucid, sparkling lectures attracted crowds of young men to him, while his genial, democratic manners and convictions made him the choice of all Americans. John C. Warren had recently been one of his favorite pupils, and Mott, following so good an example, turned to him at once on his arrival in London. From him he acquired that eager appreciation of and fondness for applied anatomy which distinguished him through life. All of those conspicuous men whom we have named were physicians as well as surgeons. It was true of them, as Gross wrote of American surgeons seventy years later, " There were, strange to say, as a separate and distinct class, no such persons as surgeons among us, and there is not a medical man on this continent who devotes himself exclusively to the practice of surgery."

Mott passed a year in London in such surroundings and with such advantages. Cooper seems to have thought well of him and to have made much of him. Twenty-five years later, when they were both getting on in life, the two men

met again in London, when the old surgeon recognized at once his sometime pupil. Mott thought very highly of Abernethy, whose fame has been so much overshadowed by that of the better-known Cooper, and he was wont to say of him that if Cooper had not stood by his side, Abernethy would have been looked to as the most learned, scholarly, able, and foremost of English surgeons.

Edinburgh was more pleasant to Mott than was London. Probably in the smaller town the kindly Scots paid more regard than did the Londoners to the able and modest young gentleman from New York. Those were great years in Edinburgh; the very names of the men on the street rendered famous to us,—Scott, Jeffrey, Sydney Smith, and a score of others. We all know the familiar engraving of Scott reading aloud to his friends. One would be glad to know if Mott knew Sydney Smith well. It was that shrewd critic who asked later, in the *Edinburgh Review,* whether any one had ever read an American book;[2] when, promptly, all America went to work to refute the sneer, and has been hard at it ever since.

In Edinburgh the teachers were such as McDowell had known fifteen years earlier, Gregory and Monro being very distinguished; and there, too, John Bell was to be found. That was a remarkable man. Our kindly but garrulous

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[2] "The Americans are a brave, industrious, and acute people, but they have hitherto made no approaches to the heroic, either in their morality or their character. During the thirty or forty years of their independence they have done absolutely nothing for the sciences, for the arts, for literature, or even for the statesmanlike studies of politics and political economy. . . . In the four quarters of the globe, who reads an American book? or goes to an American play? or looks upon an American picture or statue? What does the world yet owe to American physicians or surgeons? What new substances have their chemists discovered, or what old ones have they analyzed? What new constellations have been discovered by the telescopes of Americans? What have they done in mathematics? Who drinks out of American glasses, or eats out of American plates, or wears American coats or gowns, or sleeps in American blankets?"

Gross puts him on a "lofty eminence, a fit resting-place for an eagle." He struggles for words grand enough to describe his genius, and winds up by placing his name by the side of that of Harvey. John Bell certainly was an unusually able man, a skilful surgeon, and a delightful teacher. Like our American Physick, he, too, was a father of surgery,—Scotch surgery in this case.

So Mott saw Bell at work as he had seen Cooper, and it was a goodly sight for young America. He spent a year or more at such tasks, following surgery mainly; and then, in 1809, returned to New York to take up the real labor of life.

Mott's professional chances were brilliant from the outset of his practice. He had a solid intelligence and was well educated; he was painstaking and thorough, and had absorbed from Astley Cooper that great man's almost romantic love of his profession. Besides, there were various adventitious advantages. He was handsome and carried himself unconsciously with an air of distinction. He was kindly, patient, accessible, tactful, and modest. Such characteristics have served to attract and to hold patients from Fuller's day to this. Fortunately for himself and us, Mott's father was living and well able to assist his son with an allowance, so that the young man was not forced to give himself up entirely to the earning of that "damned guinea," as John Hunter used to call it, but could still devote much time to study and to anatomical research. His first method of making himself known to the profession was by giving an admirable course of private lectures on surgery, and so striking was his success that the next year he was made a lecturer on surgery in the Columbia School.

The chaos in New York medical teaching was approaching an end in those years. Columbia was struggling along when the College of Physicians and Surgeons was established in 1807 as a department of the University of

New York. The two schools remained apart, unfruitful and ineffective, for four years, and then, in 1811, were united. In that union several good medical names were brought to the front, the most conspicuous being those of Samuel Bard, Wright Post, William Hammersley, Samuel L. Mitchell, John W. Francis, and Valentine Mott.

So Mott was transferred to the new School and there carried on the work so well begun. He was a most stimulating teacher. Had he done nothing else, that work would have made him noteworthy. His lectures were continued for fifty-six years and his signature is affixed to thousands of diplomas scattered through the land. He made no display or trial for effect. He was never bombastic; but he was full of his subject, he had an immense deal to say, and he said it with conviction and enthusiasm. His talks were carefully planned, but were not written out, nor did he commit to memory. He dealt largely with fact, little with theory, and illustrated his points with abundant anecdotes drawn from his own great experience. More than most men of that generation, his teaching was clinical, and the actual patient was shown to give point to his statements. One of his old pupils has told me that he can never forget the enthusiasm for anatomical studies with which Mott always inspired his classes, the eagerness with which men followed his lectures, and the constant popularity of his courses. Though a pupil himself of such great masters as Cooper and Bell, Mott was not an imitator, but had a distinct manner of his own and was quite as successful as they. He loved teaching, which is the vital thing after all; so that, besides his regular College classes, he had in early life a great number of private pupils. He appreciated, too, the importance of a thorough training and a knowledge of first principles, and was unwearied in the detail of instruction. Late in life he instituted three prize medals for the best dissections and clinical reports in the University of the City of New York, and he left

by will a fund to perpetuate those prizes. Such anatomical preparations were added to his museum, which comprised something over a thousand specimens; but nearly the whole collection was lost in the burning of the Medical College the year after his death.

Fortunately or unfortunately, according to one's view of it, Mott's services were not confined to one school, but were given to a considerable number. We have seen how he became connected with the College of Physicians and Surgeons in 1811, as Professor of the Principles and Practice of Surgery, Wright Post and John Augustine Smith being at the head of the combined departments of Anatomy, Physiology, and Surgery.

In 1826 there occurred a rebellion of the whole faculty. The trustees of the college had persisted in certain courses which were regarded as tyrannical, whereupon the teaching staff withdrew and established a new School in connection with Rutgers College, of New Brunswick, New Jersey. It was a strong body of professional men and the School was very prosperous for five years. Certain illegalities of its charter, touching the right of conferring degrees, were discovered, however, and it was obliged to suspend. After this Mott, with many of his associates, returned to the "Physicians and Surgeons," his own department now being the professorship of Operative Surgery with Surgical and Pathological Anatomy. This place he held until 1835, when he resigned on account of ill health, and went abroad for several years. In 1840, when he returned, the University of the City of New York had recently established a Medical School, and Mott was unanimously elected Professor of Surgery and President of the Medical Faculty. With a strong staff, which included Pattison, Revere, Paine, Draper, and Bedford, the new School was very successful and useful. Here Mott worked and taught until 1850, when he resigned and again went to Europe. On his return the same year he was

made Professor of Operative Surgery and Surgical Anatomy in the College of Physicians and Surgeons. Two years later he resigned this chair and was made Emeritus Professor of Surgery in the University. There he lectured annually until his death in 1865.

Such, very briefly, is the synopsis of his teaching life, and for usefulness and value that life may be divided into two parts by his first journey to Europe and the East,—a journey which occupied nearly five years. It was in the years before that—before 1835—that he made his name. In those early twenty-six years he was at his best; during that period he did his hardest studying, teaching, and practising, and demonstrated the operations which made him famous. He went abroad a distinguished man, fifty years of age, with his force but little abated. After his return he buckled on the harness again, kept well to the front, and was followed, esteemed and revered,—a potent and stimulating old man,—to the end, in his eightieth year; but he had ceased to make history. It was a name that long overshadowed all others, and has come down with a well-defined, little-dimmed lustre to our own generation; but for accomplishment he belongs to the early days, now nearly a century gone, with Warren and Physick, Nathan Smith, McDowell, and Dudley.

In dealing with those men the perspective is not always clear and their achievements not always obvious, or dwindling small, perhaps, by comparison with what we now know and do; but they were pioneers, very strong in their generation,—men who would have filled space even in these present times, and without them we could scarce have been.

Mott did all that teaching of which we have heard, and more than any other American then living he impressed upon surgeons the importance of anatomy and continual dissecting. His work upon the blood-vessels alone was so insistent that the influence still persists. With us, and in

civil practive especially, the ligature of arteries is infrequent; but we all patiently study their relations and, because Mott so taught, spend many hours yearly teaching our students those mysteries. But Mott's studies in anatomy covered many other things, and he dissected far more than do we to-day. Not that such studies are less important now than then, but because we keep ourselves refreshed largely by operations on the living. In those days, before ether and before asepsis, operations were infrequent. No man was a surgeon only, for there was little surgery to do. The man among us who does his three or four hundred operations annually would scarcely have done fifteen or twenty a hundred years ago; so that the hand became unskilled and the memory rusted without constant resort to the dissecting-room.

Mott became prominent as a practitioner within a very few years after his establishment in 1809, and in general practice he was earlier successful than either Cooper or Physick had been. The influence of women has much to do with the popularity of a budding physician, and they admired Mott as "the handsome young Quaker doctor." This influence is a curious thing. Women comprise the majority of a general practitioner's patients because, far more than men, they are victims of minor ailments for which they seek advice, and they usually select the man who is to take care of their children. For these reasons they have it in their power to make or mar a beginner; their doctor, equally with their children, becomes a common subject of gossip; and though their estimate of his professional attainments is based on prejudice or fancy, a man must possess very real merit indeed to escape this subtle influence for good or ill.

Most fortunately for Mott, he was too strong a man and too well-equipped a surgeon to be affected by a passing popularity. His real abilities were known to his professional brethren, and he became a valued consultant to

them at a very early period. The one thing lacking in his first years was a hospital appointment, and every surgeon knows how serious a disadvantage is that lack. It limits a man's work to his own and to his consultants' private patients, and it cuts him off from all the great and selected pathological material which the wards of a general hospital alone can furnish. In other words, it seriously limits his experiences as well as his occasions for usefulness. Mott had been eight years in practice before he gained the coveted prize, when in 1817, he was appointed Attending Surgeon to the New York Hospital. His associates on the staff were Wright Post, his old master, Richard S. Kissam, and Alexander H. Stevens.

With this appointment Mott's opportunities were greatly increased, his operative skill was seen abundantly, and at the Hospital he performed the operation which caused his name to be spoken on both sides of the Atlantic,—the ligature of the innominate artery. He performed the operation and awoke the next morning to find himself famous. Formidable operations are now of such daily occurrence that it is difficult to conceive the furore occasioned by Mott's feat. A few years earlier Cooper had tied the abdominal aorta, but even that had made scarcely more talk.

Mott did his operation in May, 1818, the year after receiving his hospital appointment. The innominate artery, as the non-medical reader may wish to know, is a large blood-vessel, an inch and a third long, which springs from the right side of the arch of the aorta, close to its exit from the heart, and runs towards the right collar-bone. It divides shortly into two great vessels which carry blood to the right arm and the right side of the neck and head. In Mott's case the innominate was tied for the cure of aneurism, or great distention and thinning of the arterial branch running to the arm. The patient was one Michael Bateman, a seaman from Massa-

chusetts, who had recently been admitted to the New York Hospital. The operation had never before been done on the living. We must remember that the patient was not under ether and that the surgeon must work rapidly and surely among some of the most important structures of the body, conscious all the time that his patient is in terrible agony, perfectly aware of what is going on. At the outset Mott intended to tie the branch vessel, but found that artery so diseased that he abandoned the attempt and, carrying the dissection deep into the chest, threw a ligature about the innominate itself. Remember, too, that by tying this he also cut off the blood running to the right side of the brain, and that there was no precedent to indicate what the immediate result to life might be. The ligature was tightened very slowly indeed and then tied, when, to his intense relief, Mott saw that no appreciable damage to the brain and nervous system resulted. Promptly the swollen artery was reduced to one-third its former volume. The man lived twenty-five days and then died of recurring hemorrhages. In this and similar operations Mott always took the most acute interest, but it was not until forty-six years later, in 1864, that any surgeon succeeded in saving his patient after ligature of the innominate. That first successful case belongs to a New Orleans surgeon, A. W. Smyth, who tied at the same time the carotid, or great artery of the neck, thus making more certain the complete checking of hemorrhage.

But Mott's first operation made him famous, and it is for that more than for any other one thing that he is known to-day in surgical annals. The performance was witnessed by many, all of whom testified enthusiastically to the surgeon's nerve, resourcefulness, and skill.

Mott's amputation at the hip-joint, supposed at the time (1824) to be the first case of the kind in America,[3] was

[3] Brashear, of Kentucky, had done the operation in 1806, but his case had not been published.

the occasion for further applause; and even more famous was his removal of the entire clavicle for a very extensive tumor (osteosarcoma) involving many important neighboring structures. He called it his Waterloo operation because it was done on the anniversary of that battle. The patient, a young man of nineteen, recovered and lived many years, with a useful arm. In 1827 Mott tied, for aneurism, the common iliac artery,—a great vessel, which is one branch of the Y into which the aorta divides, low in the abdomen,—and the patient recovered perfectly. Indeed, for his work on the blood-vessels Mott was best known. It is said that no surgeon, living or dead, ever tied so many arteries, his total of great vessels alone being one hundred and thirty-two, including eight cases of the subclavian, fifty-one of the common carotid, six of the internal iliac, fifty-seven of the femoral, and ten of the popliteal.

That successful tying of the common iliac was the second case ever so operated upon and Mott's patient was the first one to survive. The former and unsuccessful case was in the hands of another brilliant and daring American surgeon, William Gibson, of Baltimore. His patient had been wounded in the abdomen by a gunshot. Gibson tied the vessel to arrest hemorrhage, but the man died of peritonitis.

Other fields in which Mott did good work were the surgery of harelip, excisions of the jaws, and cutting for stone in the bladder. Of course, as time went on and his reputation became more and more conspicuous, he was consulted for numberless conditions in which he was not especially at home, but he seems to have had the rare self-restraint to refuse cases for which he did not regard himself an expert. Another pleasant quality of his younger days was a frank modesty in regard to the work of other surgeons. If a colleague proved himself successful in some particular operation which Mott did inefficiently or

not at all, he did not assume the attitude that that operation was insignificant or useless, but frankly admitted that the other surgeon was the better man at that particular piece of work. He was much like the rest of mankind in many ways, but was willing to grant that there was room for more than one surgeon in New York City.

Again, in thinking of those men and their times one must stop to reflect how small a community America then was. When Mott began practice the whole country contained but one-sixth of its present population, and New York was a delightful old-fashioned town, not differing much from the colonial type, with quiet streets, retired squares, dignified home-like houses, and pleasant farms within easy drive. It was smaller than Philadelphia and but little larger than Boston. Every one knew every one else. The life was quaint, kindly, and agreeable. The Hudson River was still the main thoroughfare up the State, and civilization had scarcely penetrated beyond the Falls of the Genesee. Newspapers were few, and there was but one considerable medical periodical. It was a small and scattered audience to which men talked. But the great expansion of the country was well begun, and more and more messages of the wise were being carried to the struggling pioneers.

Many men are living to-day who can recall the sort of frontier doctors we had in the first half of the nineteenth century: their rough, forceful ways, their ingenuity, and their fearlessness. Many of them had gone to the cities for their training, many had come out from the East, and they carried with them into their wild communities a reflection, at least, of what was doing in the larger world. Now, it was for such doctors as these, among others, that Mott labored. He had a large idea of the country's future, a thorough appreciation of the meaning of a scientific training, and early he conceived an ambition to have the medical work of the next generation done by properly

qualified men. According to the needs of the hour, he in some sort succeeded. He and his colleagues did manage to train in a rough fashion men competent to do their share in the life before them and to act worthily as the leaders towards a higher civilization. In a hard-working frontier existence the actual and the practical are what are wanted of medicine. There is little need of the refinements of diagnosis and the subtile suggestions of a phantom therapeutics. Your leg is broken or it isn't; you have pneumonia or you haven't, and there is an end of the matter. Very practical and very sane all that—if only later days might so endure.

In 1835 Mott found himself seriously broken in health; so he went to Europe and was lionized. Then he came home and wrote about it and was laughed at by some. He had been sent off with a great blare of trumpets. His associates, with good old Hosack as their chairman, gave him a public dinner and made much of him in the way so characteristic of serious professional men. He sailed with all their kind sayings and good wishes in his ears, and he was welcomed in London and Paris by men almost equally appreciative. No sooner was he landed in England than he hurried to meet his old master, Astley Cooper, then in his sixty-ninth year. He was recognized even before announcing himself, and was received with a courteous enthusiasm which never forgot the fame the American had acquired since the early London days.

Since the time of Mott's youth, however, the centre of medical interest had shifted from London to Paris, and to Paris he went eagerly. Old Larrey, Napoleon's great surgeon, was still living there,—a man never to be forgotten by his guild. This ancient personage was Surgeon-in-Chief to the Invalides at the time of Mott's visit, and was untiring in his courtesies and attentions to the visitor. Mott spent several weeks in Paris as in London, visiting the hospitals and enjoying his social honors.

Among the men specially mentioned in his journal were Guérin, Civiale, and Velpeau. Then he went to Berlin, and was received by Dieffenbach, and so continued through Germany, Belgium, Switzerland, Italy, Greece, Egypt, and Turkey. His account of his travels is entertaining. He interrupted them during the second year by returning to New York, but soon went back again, and remained abroad about five years in all. While in Greece he made Athens his head-quarters for a long visit, and journeyed about the country with great enthusiasm, trying to reconstruct the classic scenes and times and men as Henry Holland had done before him and as so many moderns have done before and since. In the moderns of Greece he was wofully disappointed. As he mildly remarks, "they seem to be sunk too low in all the vices of Oriental indolence ever to be regenerated." His journey to ancient Epidaurus, the birthplace of Æsculapius, was a cause of much mirth at his expense. He went there bearing a cock, which he sacrificed to the memory of the ruling deity, having first tied both carotid arteries of the bird, and delivered a brief clinical lecture to his companions. His biographer chides the medical press for making fun of the delicious situation. From Athens Mott went to Constantinople, where he took a wen out of the Sultan's head while the trembling court physician applauded. The Sultan made him a Knight of Medjidichi, and then he came home to New York, where those stories of the cock's carotids and his Medjidichian honors had preceded him.

That ends the story of Mott's life so far as his best work is concerned. He lived twenty-five years after coming back to us, and the years were useful ones. As a teacher and operator and as an agreeable man he continued to impress the rising generation, and he lived through the Civil War. He went again to Europe later, but brought back no more titles. The tale glides quietly along, not greatly salient.

We cannot but regret that Mott was no writer; he hated the drudgery of putting down words. There came from him many clinical reports, of course, but no *magnum opus*. In 1818 he helped found the "New York Medical and Surgical Register," but the work ceased when one volume had been published. He did publish his "Travels in Europe and the East,"—a considerable octavo,—and we know how the reviewers made unkind remarks on that.

I think his best printed writings, and the ones which now attract us most, were his introductory lectures to his classes and to societies, and his eulogies of Wright Post and John W. Francis. When all is said, however, there was little enough. Where he failed many lesser men have succeeded. He did not give forth to the world the best that was in him. He will be remembered because medical history must take note of that innominate which he tied; but his great learning, his operative abilities, his genius for teaching,—those things have perished with him. Had he been so minded, he might have enrolled himself in medical literature by the side of Cooper and Brodie and Paget. But he failed to impress men beyond the circle of his own life, to the end that he was himself the loser, and we to-day lack fruitful records of one of the strongest men in American surgery.

Unlike the history of literature or of politics, the history of medicine must be largely an account of men and the lives they led. Good literature produced in the eighteenth century is good literature in the twentieth century. The political acts and motives of our ancestors find their counterpart among us to-day and the value of such things is vital still; but the science of ancient times is no longer our science. With few exceptions, that old knowledge is but as the babbling of children. We cannot take seriously most of the former wisdom, but we may honor the men and follow their lives and admit the debt we owe them; for out of their much talking and blind gropings there

grew the scaffolding of the edifice which we are now building.

When we come down to the men of our grandfathers' generation these thoughts are not so obvious, because in those men we begin to see ideas and motives and acts more modern. But much that they did well now seems very feeble and erring,—little worthy of serious study, though doubtless very important and urgent a hundred years ago.

However, the reading of that old medical literature is still very interesting. The acumen of the men, with the dim light they had, is remarkable indeed; their shrewd guessing, their frequent missing, and their infrequent hitting of the mark make a pursuit of constant pleasure and charm for the student of those times. Yet an account of such hittings and missings and guessings must form no part of this work; the task would be too intricate and lead us into technicalities too far afield. After all, it is the men themselves whom we must observe, together with those few things which now and again they did greatly.

Among the men of that generation few led more steadily laborious and useful lives than John Collins Warren. He was seven years older than our New York Mott, being born in Boston on August 1, 1778, and was the eldest son of that vigorous and interesting John Warren[4] who served in the Revolution and founded the Harvard Medical School.

If ever there was a man blessed, or cursed, as you choose, with the New England conscience, it was John Collins Warren. His father wanted to keep him out of medicine, and he himself had no natural liking for it. We have it over his own signature that he was indolent and hated study; yet, once having put his hand to the plough,

[4] The four generations of surgeons of this well-known family are: John Warren, 1753–1815; John Collins Warren, 1778–1856; Jonathan Mason Warren, 1811–1867; and John Collins Warren, 1842, who is still active among us.

he never turned back, but devoted himself heart and soul, steadily, faithfully, without enthusiasm, to his profession for more than fifty years. And he certainly exercised a very marked influence upon general practice in Boston, upon teaching at Harvard, upon surgery at the Massachusetts General Hospital, and upon his professional brethren in this country. Intellectually he was unlike any of those other early surgeons, though in certain elements of training and experience he might be compared to Valentine Mott. Like Mott, he was the son of a doctor; he was born and reared in an old, well-established community and in a medical atmosphere; he was thoroughly educated for his work; and he spent his life in the midst of congenial surroundings, social and professional.

We probably know as much about him as we could know about any man of his temperament, for he had a steady appreciation of his position in life and took copious biographical notes of his own career. Those notes were elaborately edited by his brother soon after his death.

Inheriting a strong position from his distinguished father, he had a constant and proper pride in supporting it; and the combination of a sound understanding, wide culture, laborious industry, and eager grasp of opportunity, together with the fortunate circumstance that for many years he met with little serious professional competition, secured for him in early life the unique position of surgical autocrat of New England.

His biographical notes contain abundant material for a delightful memoir of his times, if only they had fallen into the hands of a Trevelyan or a Lang. Unfortunately, his editor was too much bent on eulogy for the popular success of the book. In spite of these drawbacks, we have a picture of a very important and very full career, and of a man familiar in his day to doctors throughout the land.

Warren's youth was passed amid surroundings which seem very ancient to us now. His grandson and namesake

has given us a charming sketch [5] of those old days, taking his material from his ancestor's own notes, which run,—

"At the period when I left college and became an inhabitant of Boston it was thought necessary to undergo the operation of a barber half an hour every day. This consumed much time, besides the horrid consequences of carrying on one's head a quantity of curls, flour, pomatum, and the long cue or heavy club.

"The dress at that time was a colored coat with metal buttons, usually yellow; colored waistcoat, short breeches, buttoning at the knees; long boots with white tops, and when riding on horseback a pair of leather breeches instead of pantaloons, of drab cloth.

"These yellow breeches were daily cleaned with yellow clay, which required that the coats should never be brought in contact with them. Then a short ruffle at the breast and about the wrists, a white cravat, filled out with what was called a pudding, the use of which, from the effect of habit, could not be dispensed with for some years.

"Cocked hats were very much worn at the time, but not by the young.

"Gentlemen of a certain age wore wigs, which were sent to the barbers once a week to be fresh dressed, so that on Saturday night we saw the barbers' boys carrying home immense bundles of wig-boxes as a preparation for going to church on Sunday.

"Physicians who had much business in those days rode on horseback. Riding in a chaise was very rare, and in a four-wheeled carriage still more so. My father rode on horseback till a few years before his death.

"Dr. Lloyd generally drove a very fine horse, and Drs. Jarvis and Whipple were famous for beautiful saddle horses and the elegance with which they rode.

[5] Reminiscences of an Old New England Surgeon (Maryland Medical Journal, 1901, vol. xliv. p. 45), by J. Collins Warren, M.D., F.R.C.S.

" Large parties opened at seven or eight o'clock in the evening, and were much more formal than at present. A friend of mine told me that he saw me dance a minuet in 1786 or thereabouts, and that this was the last time he had witnessed this dance in Boston.

" Persons of a certain age were treated with a degree of deference now wholly disused. In fact, one of the great traits of the manners of the present time is the manner in which young persons are accustomed to treat persons older than themselves.

" Gentlemen's dinner parties began early and ended late. The great care on the part of the host was to present to the guests as much ordinary wine as they could be made to drink, and then to bring forward in succession a variety of old wines, each having a character a little better than that which preceded. All of these had some remarkable history connected with them, the detail of which constituted an important part of social discussion.

" On the whole, the dinner parties of those days must be looked on with disgust, for not only was the quantity sufficient to make irreparable inroads on the physical organization, but this indulgence led to coarse extravagance of language and thought, and the conversation at a dinner party, if taken down by a stenographer and presented to the party on the morning following, would have filled them with shame and regret."

Warren was intended by his father for a mercantile life, but a suitable opening not immediately presenting itself after he left college, he passed a couple of years at French and the *pretended* study of medicine, as he himself says. Then he went to Europe and settled down to serious work; that was in 1799. His course there was much like that of many other young American students whom we have followed. London claimed him first, where he became a pupil of William Cooper, and later of William Cooper's nephew, Astley Cooper. The elder was an able, conserva-

tive surgeon, testy, and ignorant of all things beyond his little island, and was the antipodes of his brilliant, generous, popular nephew. Warren secured a dresser's position at Guy's Hospital,—it was merely a matter of money down,—and served at such work and dissecting for something more than a year. Then he went to Edinburgh for a year, where he received his medical degree, and then for a final year to Paris. In the two latter places he studied hard, taking up chemistry, general medicine, and midwifery, as well as anatomy and surgery. He lived in Paris with Dubois, Napoleon's distinguished surgeon, and studied chemistry with Vauquelin and Fourcrois; anatomy with Ribes, Sabatier, Chaussier, Cuvier, and Dupuytren; medicine with Corvisart; and botany with Desfontaines. That was a brilliant gathering for the edifying of a young gentleman from Boston. He says that the French students were green from the Revolution, for the most part a rude and vulgar set of people, who made him much trouble first and last.

In the autumn of 1802 Warren came home by the way of England, and on arriving in Boston found his father in very poor health. In order to relieve him he immediately assumed a great part of his practice. It is said that at this time the elder Warren had a larger private practice in Boston than any other physician has carried before or since. At any rate, the son found himself almost swamped by these new duties, and tells in his Diary that frequently during the next year he would make fifty professional visits a day. Allowing for a working day of sixteen hours, this would give him about twenty minutes to each patient, not counting the time consumed in travelling; and, as much of his work was midwifery, we must think of him as a young man with an extraordinary burden to bear. It is recorded of both the Warrens that they acquired a very great facility in dealing with patients and a remarkably intuitive skill in the diagnosis of the day. Their visits

were purely business-like. They would take up the case at once, wasting no time in gossip, and, the required duty being completed, would promptly withdraw. This very sensible method, so unlike that usually followed by their colleagues, gained them the respect of their patients and daily saved hours of valuable time.

The fortunate young Warren found other advantages to his hand, not the least among them being an opportunity for teaching. His father was finding that work and the ride to distant Cambridge almost more than he could bear, so the son was set to work to relieve him. The Harvard School was still in its infancy. Its distance from Boston made it difficult of access for students living in the city, and there was, of course, an absolute lack of clinical material in Cambridge. At about the time of Warren's coming home James Jackson also appeared upon the scene, and we find the names of the two men constantly associated thereafter for more than fifty years. They and their contemporaries were joined by the elder Warren and by Dexter in the effort to transfer the school to Boston, and, after years of rather bitter conflict with Waterhouse, they succeeded in effecting the change in 1810.

Those years between 1802 and 1810 were important ones to Warren in many ways. To begin with, in 1803 he married a daughter of Jonathan Mason, and began the rearing of his many children. He was active in all sorts of literary, social, and scientific enterprises. With John Lowell, John Quincy Adams, Kirkland, Quincy, Jackson, William Emerson, and others he started a Natural Philosophy Society; with Gardner, Emerson, W. S. Shaw, Buckminster, Tuckerman, Jackson, and others he established that Anthology periodical and the Society which grew into the Boston Athenæum; with Jackson, Dixwell, Coffin, Bullard, and Howard he formed a society for medical improvement. In 1806 he was made Adjunct to his father in the chair of Anatomy and Surgery at Harvard,

and he succeeded to the full professorship upon his father's death, in 1815.

Warren's name will always be associated with two important facts. One was the founding of the Massachusetts General Hospital, the other was the introduction of ether anæsthesia. These two events were separated by an interval of twenty-five years, but around them both are grouped nearly all that is conspicuous in Boston medicine during the first fifty years of the last century. There were, of course, other men concerned with both events, some of them more intimately than was Warren; but Warren was part of both, and for such distinction is known to us.

Before the establishment of the Hospital his constant occupation as a teacher and general practitioner led him into lines of research less strictly surgical than what we know of his work in his later years. In 1809, while still comparatively fresh from his European teachers, he published a valuable paper on organic diseases of the heart, a subject which until then was little understood in this country; and in 1811, together with Jackson, Gorham, Jacob Bigelow, and Channing, he assisted in founding the *New England Journal of Medicine and Surgery*. This publication was ably edited, and in 1828 was united with another, under the title *Boston Medical and Surgical Journal,* which flourishes to-day.

As a writer Warren was clear and strong. His belief was that, as yet, the profession in America was too young and inexperienced for original work of moment. He recognized the inadequate training of the great mass of his fellows, and he was convinced that their first need was to acquire and absorb the learning of the Old World. This belief he preached with pen and by word of mouth. He was one of the first to see the true functions of a medical school, and he followed other wise men in insisting upon the establishment of hospitals. His lectures were carefully prepared and systematically delivered. He was clear

and instructive without being eloquent. He lacked the charm and magnetism of his father and uncle in public speaking, but was more learned than they, and ably carried on the work which the former had so well begun.

The Massachusetts General Hospital was slow in getting started. So long ago as 1810 Jackson and Warren organized the movement for its foundation,—a movement which had been in contemplation for many years; if, indeed, it may not be regarded as the direct outgrowth of that great military hospital over which old John Warren went to preside in 1777. When that old institution disappeared after the war, the elder Warren missed it sadly, and in his later life essayed to promote a proper substitute.

At last, on August 10, 1810, these various desires of wise men in Boston found voice in a circular letter signed by James Jackson and John C. Warren, in which they asked their fellow-townsmen for subscriptions to a "hospital for the reception of lunatics and other sick persons." Promptly the good work was taken up by prominent men of the laity,—James Bowdoin and fifty-five others, citizens of Massachusetts, — incorporators under the title "The Massachusetts General Hospital," and the enterprise progressed slowly and substantially until, finally, in September, 1821, the first patient was received. Warren was then forty-three years old, and his father had been six years dead, without seeing the long-desired hospital an accomplished fact.

It was to the two men, Jackson and Warren, that we owe the Massachusetts General Hospital, and to this day their names and that of Bigelow are the ones most closely associated with it. From the outset it was a general hospital where acute diseases of all kinds were received, though from the beginning its wards for the insane were removed to a distance—located in Somerville—and named after John McLean, who had contributed towards the

foundation sums amounting to about one hundred and twenty thousand dollars.

Until the establishment of the General Hospital there had been little opportunity in Boston for study and experimentation on surgical lines, but with its advent Warren's career expanded in a fashion unknown even to his father, and in his own careful, methodical, and painstaking manner he proceeded to organize a routine for the surgical staff, after a fashion which, even to this day, has left its impress upon the practice of Boston. Warren was very able, but, unlike many other able men, he was a man of detail. His whole life seems to have been schematic, and his hospital practice was made to correspond with the rest of his life. We have seen that he was keenly alive to his own dignity and position, and this characteristic, which sometimes became irritating to his equals in the outside world, was made to serve a very useful purpose within the Hospital walls.

From the outset his department was conducted on lines of almost military discipline. His colleagues were formally addressed and consulted, and the nicest punctilio was observed between them. His juniors on the staff were required to hold towards him and the other senior surgeons a proper distance and respect; the house staff, as we should call the young graduates who act as assistants, were enrolled as "house pupils," were addressed as "Mister," and were not permitted to assume the title of their doctor's degree until the end of their year of service. Their duties were strictly those of the humblest of assistants, they were given no responsibility beyond the very slightest, and their labors largely consisted in the careful writing, at dictation, of voluminous records and in aiding in the dressing of wounds. To some extent, too, they assisted at operations, though more often this work was done by one of the surgeon's own colleagues. In their turn, the nurses and the servants of the Hospital were

relegated to the very humblest of positions. The result of all this was a most admirable machine which, once established, ran of itself, and in some measure still runs on much as it was set going eighty years ago.

The position of a great surgical teacher who is also at the head of a hospital, on whom students wait for their instruction and young doctors for their orders, is almost unique in civil life. The college president or the great merchant is less of an autocrat in his own field. The colonel of a regiment or the captain of a man-of-war alone surpasses him; and we must believe that Warren, with his temperament and opportunities, developed to the full the possibilities of the situation.

He was a very able surgeon of the painstaking type. In those days all operations, even the most inconsiderable from our point of view, were serious matters. Without antiseptics there was always the probability of serious inflammation following, and without ether there was always intolerable pain; so the knife was used sparingly and of dire necessity only, and he was thought the most skilful surgeon who could avoid it longest. Warren prepared with the greatest care for each operation. He read up his authorities, he consulted his notes, he studied his case, and he practised on the dead subject. By such practice he became rarely facile, but never presumed on his facility. His work on the living was done methodically and with minute pains, to avoid hemorrhage or damage to structure, and it was thoroughly done. In all the minutiæ of dressings, bandaging, and apparatus he was a past master. He held that, so far as possible, wounds should be closed without stitches, and his dressings were works of art. Indeed, in such work he set the pace, and the rare beauty and method of bandaging and apparatus in Boston hospitals are conspicuous to this day.

In one respect his admiring brother and biographer does him an injustice, for he tells of his brilliancy in diagnosis

and how he would form his opinion at a glance. For the great majority of common lesions this was doubtless true; but it is hard to believe that a man of Warren's careful and accurate mind would give way to the temptation of what we call "snap diagnosis," especially in those ancient days, when instruments of precision were lacking and the science of pathology was just struggling into life. We have copious notes of his clinical remarks made at the meetings of the Boston Society for Medical Improvement, and such remarks leave with us a feeling that he came to his conclusions only after careful thought and the exhaustive comparing of conditions.

About the time of the Hospital's founding Warren was at the very height of his career. He had always been rather delicate in health, and it had been his constant care to guard a chronic dyspepsia, to have his body in condition, to keep the machine in good working order, as we say. Yet he was a very laborious man. It was his habit to rise early on winter mornings and breakfast by candle-light; then he went out and made professional visits until one o'clock, when he dined, giving himself about ten minutes for that function. He saw patients until two, when he lay down for an hour's rest. In the latter half of the afternoon he made further visits, supped at seven, and spent his evenings until two o'clock in the morning at his books and in writing. On hospital and lecture days his labors were still further prolonged. It was not an easy or self-indulgent life.

With all his care and method, Warren was not a timid operator. His amputations were bold and brilliant; he removed cataracts with great success; he taught and practised operation for strangulated hernia,—the first surgeon in this country to do so, and against strong professional opinion here; he introduced the operation for aneurism according to Hunter's method. His excisions of bones for tumor, especially the jaws, became famous and are

classics, for are they not recorded in volumes of the *Boston Medical and Surgical Journal?* In 1837, when fifty-nine years old, he published his *magnum opus,* "Surgical Observations on Tumors," a thick octavo with plates,—a great collection of cases and remarks interesting and instructive to-day. But all this gives only a very faint idea of his ceaseless literary activity. He was always writing; reports, memoirs, essays, and lectures poured from his pen. It was a ready pen, and had behind it a brain stored with keen thoughts and abundant information.

His extra-professional interests were multitudinous, and few men have felt so constantly the burden of their responsibilities to the community. He was like an officer on dress parade, or a careful father in the presence of his young children, always punctilious about appearances. He felt it must not be said that a man of his eminence or importance ever set a bad example or appeared to disadvantage; so he was forward in good works. He was dogmatic and final in his decisions and explicit with his advice. In matters surgical his word was law for many years, and it was not until his old age, and with the advent upon the scene of another strong, young, and aggressive man, that his power began to wane.

With his own advancing years he also saw his son, J. Mason Warren, beginning to gain the public confidence, and so he found time to devote himself more to work outside of his profession. He was always greatly interested in comparative anatomy and paleontology. Among other trophies he was able to secure the most perfect skeleton of the mastodon which exists: the monster is still preserved in the old building on Chestnut Street which has been known for sixty years as the Warren Museum. All through his life he devoted himself, like Hunter and Cooper before him, to the collection of anatomical specimens. This collection, together with the treasures of the Medical Improvement Society, passed years ago to the

Harvard Medical School and formed the nucleus of the fine "Warren Museum" of that institution. In middle life he became a convert to total abstinence, and was for many years President of the Boston Society for the Promotion of Temperance in the Use of Alcohol. He was also President of the Natural History Society of Boston, and was an active member of the Agricultural Society. An interesting organization for the promotion of scientific and literary pursuits was founded by him; it included in its membership many of the most eminent and scholarly men of Boston, and was at first known as the "Warren Club." Under the name of "The Thursday Evening Club" it flourishes to this day, with a history of unbroken excellence and interest, and at the present writing is presided over by the grandson of its founder.

Warren's acquaintance with the profession in this country and in Europe was extensive. He was more given to travelling than was the wont of Bostonians of his day, and in middle life made an extended trip to Europe, renewing old acquaintance, seeing society,—indeed, with his family, he was present in London at the time of Queen Victoria's coronation,—and visiting the homes of science at the fountain-head.

He was prominent in the establishment of the American Medical Association, of which the primal purpose was the elevation of medicine in practice and in teaching, and he was one of its early presidents. Of all these things we have the story admirably told by himself in his published biography.

Then there was that other great event with which his name is most conspicuously connected: the first public use of ether anæsthesia in surgery. That was in October, 1846, when he was approaching his seventieth year, an age with which we are not wont to associate great and daring progress in affairs. It is needless here to enter upon this most interesting and confused chapter of American sur-

gery. Suffice it to admit, as Jacob Bigelow did years afterwards, that to Warren belongs the credit, in his old age, of allowing his name and position to stand sponsor for this courageous and revolutionary experiment. Warren himself was too near the end of his career to benefit greatly by anæsthesia in surgery; but in some measure he saw its significance, and wrote about it and championed its uses always.

The old man lived until 1856. Fifteen years before his death his wife died, leaving him with six grown children, and two years later he married a daughter of Governor Thomas Lindall Winthrop, who also died before him.

He kept busy almost to the end of his life, especially with his writing. His last surgical paper was published in May, 1855, just a year before his death, which closed a brief and painful illness.

His real work had, however, been done long since. It is not a life which lends itself readily to eulogy. It was not full of striking events and dramatic incidents. Except for the ether episode, no event stands out conspicuously; and in that he simply lent his name, as, indeed, but for him, some other might have done. But it was his long and useful career that made him eminent; his services in helping to found a great hospital, his establishment of sound surgical methods, his correct and methodical teaching, his faithful searching out of the truth, his insistence upon drill, his contempt of the brilliant superficial. All these things were very important, and among us helped to set a new standard, up to which we have been growing ever since. He was indeed a man whose work our community could ill have spared; and, though he was succeeded by the meteoric Henry J. Bigelow, the younger man would have found for his endeavors a very different field had it not been so carefully and faithfully tilled, through toilsome years, by Warren.

In the lifetime of our own generation—in January,

1870—there died in Kentucky an old man who had been the master of Western surgery forty years before,—Benjamin Winslow Dudley. Though less known to foreign readers than the other eminent surgeons of whom we have heard, and though leaving behind him a name less enduring in our surgical literature, his power and his immediate personal influence were spread over a wider region than were those of all his distinguished American contemporaries combined.

He was of Mott's age,—born on April 12, 1785,—and therefore fourteen years younger than his famous neighbor, Ephraim McDowell; his real work in life began some five years after that pioneer ovariotomy. From such scanty memoranda of Dudley's life as have been published one concludes that its early chapters must have been full of interest and adventure. He was a splendid type of the Southwestern frontiersman turned scientist: bold, determined, clear-sighted, devoted; ready with fist or rifle; magnanimous, enthusiastic. Averse to learning as an end, he was an untiring student of facts, and, with a single-hearted devotion to surgery, believed in his profession as the one incomparably fine pursuit in life. He was a born dictator, irascible, impatient of opposition, intolerant of humbug; not altogether a comfortable man to live with, we must believe, and often at odds with men. Writers who knew him speak ill and well of him. Gross slurs him as "the knight of the roller." On learning of his death, Yandell wrote that "a great light of the profession has gone out" and that "if he leaves behind him any superior in our country, it is certain that no one of all our surgeons has occupied a larger space in the public eye."

He was not only a great operating surgeon, but a great teacher; in point of time the first of those distinguished surgical teachers in our Middle West who have adorned the American profession.

Like so many other eminent Americans, he began life

under grievous disadvantages. His father, Ambrose Dudley, though not an utterly obscure man, was poor, being a Baptist minister of some local fame as a preacher, but unable to do much towards starting his distinguished son in his career.

Like McDowell, young Dudley was a native of Virginia, born in Spottsylvania County; but his father was one of the early missionary emigrants, and moved into the neighborhood of Lexington, Kentucky, while the son was still a child. In the town of Lexington Benjamin Dudley was reared, and there he lived out his life, subject to such vicissitudes of fortune and experience as we, briefly, shall see.

It was not a neighborhood or an atmosphere much given to learning and the cultivation of the graces in those early days, and Dudley grew up with little schooling or love of study. He did learn to write well, however, and early became master of a terse and vigorous English. It is said of him that in later life he deeply regretted his ignorance of the classics, and was sometimes embarrassed in the society of scholars. I doubt the latter statement. Of him one may say truly that he had a "call." From his earliest years he had determined to be a doctor, and while still very young he began his professional studies in the family of an excellent general practitioner, Frederick Ridgley.

This connection meant for Dudley the usual course of desultory reading and hack work; but, fortunately for him, Ridgley was a kindly and intelligent man who appreciated the early promise of his pupil and exerted himself to secure wider opportunities for the youth. Consequently, in 1804, when Dudley was nineteen years old, he was sent to the Philadelphia School, whence he was graduated in course two years later. In Philadelphia he met and knew three men with whom, later in life, he became associated on terms of both friendship and enmity,

—John Esten Cooke, Daniel Drake, and William H. Richardson. The two latter were poor, ill-educated lads like himself, and from his own State, but all three were destined for distinction in their profession.

Dudley early recognized the shortcomings of the American doctors. Like the second Warren, in Boston, he appreciated the value of observation and the importance of scientific work as it was to be found at its best in Europe, and he began to see dimly what is so clear to us now, that in American medicine there was so little of history to record because men were learning and not creating. The wise ones among his teachers could tell him that; and, with such thoughts in mind, he determined that somehow he would seek out those great foreign scholars for himself. But how to do it? He was unknown, without influence, and penniless. To offset that, he was young, vigorous, clever, and determined; so forthwith, in 1806, he went back to Lexington and proceeded to make the money he needed. Lexington was growing in importance in those days, and had become the centre of a great district. Years afterwards Yandell seriously described it as the literary and commercial emporium of the West in Dudley's younger days. An emporium of any kind seems to be a good place for the strenuous to make money in, and Dudley was one of that sort. There was not much money in physic in those ancient days, but it had to be made in some fashion, so Dudley became a trader as well as a doctor. He was moderately successful and he laid by funds. After four years of it he felt himself able to attempt a grand stroke. He put all his money in his purse, loaded a flat-boat with a collection of "sundries," and drifted down the river to New Orleans, where he did some sharp trading, invested his all in a cargo of flour, and sailed boldly for Gibraltar. It was a fortunate time for the young American to be taking food to Europe. The Peninsular war was at its height, the allied armies were en-

deavoring to drive the French out of Spain, commerce was almost at a stand-still, and prices were very high. Dudley's dealings were mostly with the English commissariat; he disposed of his cargo for a large sum at Gibraltar and Lisbon, left his vessel, pushed through Spain, and reached Paris late in the same year. In Paris he remained nearly four years. And he became a Frenchman in manner and appearance,—a Frenchman of the first empire. Those rude students who a few years before had so troubled his countryman from Boston seem to have amended themselves somewhat; at any rate, Dudley was not greatly disturbed by them, but settled down to his work and proceeded to absorb facts. Facts were what he had come for.

Baron Larrey was then the great man in France. His fame was building as yet and the Russian campaign was still two years away. The influence and teaching of Larrey made a profound impression on Dudley, who always regarded him as the greatest of French surgeons, though he placed him after the two Englishmen, Cooper and Abernethy. It was Larrey's treatment of wounds after operation which impressed him most; indeed, later, Larrey, Dudley, and Samson Gamgee were the conspicuous advocates of surgical rest and support,—a doctrine so sound and true, and so ancient withal, that its frequent neglect in these aseptic days seems a reproach to modern methods.

Larrey's surgical memoirs are fascinating reading still, and his reports of the success of major amputations performed on the field, sealed up tightly, and left undisturbed for many days in firmly supporting bandages are as convincing and instructive as ever. He was the first surgeon to introduce and teach the use of plaster of Paris, for which alone he deserves our thanks.

The student days of a century ago were noted for the eager pursuit of anatomy. For the first time in surgical

history opportunities for genuine careful dissecting were offered; and, thanks to Napoleon, Paris was the place where "material" could be had in abundance. Those were golden days in the life of France. For the first time in the nation's history merit was being recognized, and young men were crowding into the professions with the certain knowledge that advancement and honors were no longer dependent on birth and favor. That great intellectual expansion of the nineteenth century was beginning and Dudley was there at its source. Progress was in the air, and the brilliant men of whom we have already made some note were the masters under whom he sat.

Most of Dudley's three and a half years in Europe were spent in Paris, though he saw enough of the practice of Great Britain to be impressed by its famous surgeons of the day. Throughout his after-life his manner and bearing were French, but his professional method and practice were English. That latter statement I take to mean that he was, first of all, humane and wise in his attitude towards his patients; that he treated them as individuals rather than as material; that he reasoned from sound, observed premises; that he operated for the patients' sake and not for his own; that in all matters of hygiene and the "after-care" of surgical cases he was particular and conscientious; and that by tonics, food, and nursing he sought to re-establish the normal vigor of the system.

The old spirit of caste and of class superiority was not extinct in France, although the Revolution had come and gone. The educated physician regarded himself and was regarded by the masses as a very superior person. We see the same thing still in the Continental hospitals, where the poor peasant or the simple artisan, his wife and children, are but humble, dumb things, brought in and out, timidly obedient to the professor's order; and we pride ourselves that with us those things are never so. The distinction certainly is a very marked one, and the hospital-

ized physician of the Continent has much, in such training, to contend with when he finds himself confronted with his social equals as patients. English-speaking folk are in accord that the best doctors of the Continent are not agreeable practitioners, though this may not be true of the suave commercial gentry who haunt the Spas, cajoling and practising upon the minds and bodies of unfortunate Americans travelling for health.

However, though "cures" and quacks abounded in Dudley's days, as in our own, he himself had fallen into good hands, had observed and learned many things, and at last, in 1814, with a lean purse but a goodly store of wisdom, he sailed again for America and the Kentucky wilds.

When Dudley returned home he was twenty-nine years old,—far more mature than were the other beginners of that time,—and he entered upon a field in which McDowell was his only serious rival. Rarely has America produced a man so entirely devoted to his profession. His complete absorption in science so held him that as long as he lived to work his mind had no place for other things. He was not an all-round man like some others—like McDowell, for instance; he knew nothing but his cases and the things pertaining thereto. He hated recreation and sports and travel. Literature that was not medical was as nothing to him. The consequence was that he led a one-sided life, he made few intimate friends, though his admirers were legion, and he lacked a true perspective of men and things.

As a mere surgeon he soon eclipsed even McDowell, and when his great talents as a teacher became conspicuous, his fame was vaunted and spread abroad far more widely than that of his modest, kindly, and gifted senior. As a practitioner of medicine Dudley was never great, but it was for his treatment of the surgical aspects of general disease that he first became known. When he arrived in Kentucky from Europe a fierce and fatal epidemic of what

was called "bilious fever" was raging, resulting commonly in leaving the patient crippled, with obstinate ulcers of the legs, a *pons asinorum* to the medical community. Here was a problem simple enough to the eye of experience, and Dudley promptly made himself famous for the treatment of these troubles on well-established surgical principles. Rest, elevation, and elastic compression were the familiar means he used, and his cures were regarded as miracles.

The question arises whether he did not overdo a good thing and overpersuade himself; whether his success in these methods, when suitably applied, did not incline him to their use in unsuitable cases. Certain it is that such a charge was often brought against him. Gross dubbed him "the knight of the roller;" but the facts now seem to be that his disciples undid him there and, like Rush's young advocates of bleeding, brought discredit upon the man they followed.

Of Dudley, as of all those other men, we ask ourselves, Why was he famous? What great thing did he do? I suppose the answer in this case would be that he was a great lithotomist,—a remover of stones from bladders. In this, they say, he succeeded better than all other surgeons. In the course of some forty years' practice he cut for stone two hundred and twenty-five times, and the first hundred without a death. He was a clever handicraftsman, but cautious, selecting carefully his cases, which means, perhaps, that he never operated on a feeble person, lest he should die. Certainly an excellent rule for avoiding a high mortality—excellent especially in those cases in which commonly the patients come exhausted from long-continued pain and discomfort. He himself attributed his success to the care with which he prepared his patients for the operation. Be all of which as it may, he excelled even Physick in such work.

He was original as well as careful; he convinced him-

self that certain forms of epilepsy are due to mechanical pressure on the brain, owing to old unrecognized fracture, and he proceeded, but most tardily, to report his theorem, for he hated writing. His friends Cook and Short, editors of the *Transylvania Journal of Medicine,* finally dragged the communication out of him, and in February, 1828, he published in their journal a paper on traumatic epilepsy which created a genuine sensation. His conclusions were based on five cases on which he had operated, with a resulting cure in three and marked benefit in the other two. The subject was not a new one, but Dudley's figures were, and the impetus given to cranial surgery was great. Of course, the prevailing lack of surgical cleanliness at that time made all such work most hazardous, and it was not until fifty years later that such operations began to be comparatively free from danger to life. One of the points made by Dudley in this connection was his treatment of hernia cerebri, or great fungus outgrown from the brain, following extensive injury to the skull. He asserted that he had reduced this condition by steady pressure under sponges and bandages. Certain of his cases are said to have been cured in five days; but such statements make one feel somewhat doubtful of his judgment or veracity, as hernia of the brain is now known to be due to inflammations which are hardly susceptible of cure in five days and by simple pressure.

In the next number of the *Journal* Dudley described a new operation for hydrocele by excision of the sac,—a manœuvre now commonly employed and of the greatest radical value. Another series of articles on the use of the bandage followed; then one on fractures and one on stone in the bladder.

These few papers are the extent of his published writings. He understood perfectly that it is the men who write and teach who are remembered; and, in spite of his dislike of writing, he performed his laborious part so far.

The papers are striking and interesting. The pity of it is that we have no more of them.

There were fields other than medical literature for Dudley's energies, and his energies were active enough. It was teaching that he mostly cared for. He had very positive ideas of surgical work and he loved to describe them. He was not brilliant, or meteoric, or dramatic. He never "played to the galleries," but he was immensely popular as a teacher. He had learned that thing which escapes so many of the clever self-centred men whom we call professors: medical students are overworked; they are struggling with a multitude of subjects; their time is limited, and they want only the brief, cold facts, so presented that the association is obvious and the impression lasting. If a class of young men is involved in the serious study of the anatomy and treatment of hernia, they have no wish for dramatic descriptions of the teacher's latest case of appendicitis; yet such is the sort of thing to which they are often subjected by men of real ability. The successful doctor, especially the surgeon, is tempted to dilate at undue length on what immediately interests himself. To this class Dudley did not belong. His lectures were carefully arranged and without brilliancy; they were clear, terse, and intensely interesting. He was dogmatic and final, but that is what young students appreciate. He was often original, too, and impressed his personality permanently upon his hearers. While he was young, vigorous, and pre-eminent he was the one great authority; when he grew old, and rivals appeared in his field, he retired. He had grasped the meaning of science in fair measure, but, like so many of us even to-day, success made him intolerant, and so his value became lessened. The autocrat in science occupies a very perilous position. No man's mere word, without proof, is to be accepted.

Dudley returned from Europe to his old friends with a very good idea of himself, but full of the useful ambition

to advance medicine by teaching. At first he contented himself, like the others, with taking private classes; but in 1817, after he had been three years in practice, he saw his opportunity and induced the trustees of Transylvania University, in Lexington, to establish a medical department. This was the first of the great Medical Schools of the West. Nominally, the Transylvania School had existed since 1799, though in most futile fashion; but now, with the advent of new blood, it started on a fresh and prosperous career.

The reorganized School contained some strong teachers. Drake was made Professor of Materia Medica and Richardson Professor of Obstetrics. Overton held the chair of Medicine, Rev. James Blythe, D.D., that of Chemistry, and Dudley that of Anatomy and Surgery. A small but earnest body of students attended the lectures, and in the spring of 1818 there was graduated one Doctor of Medicine, W. L. Sutton, afterwards widely known in Kentucky.

That first winter was a stormy one for the youthful faculty; indeed, it was so stormy that they broke up in a row. The School was, in effect, a *private* enterprise, as were so many in those years, and the vicious system bred its natural results. Each man wanted to conduct the course after his own fashion, and matters of precedence were found impossible of arrangement. There was no endowment worth mentioning, and the School was dependent on the fees of pupils. There was little money left for the teachers; so the faculty came literally to blows. In disgust, Drake went to Cincinnati to help start a school there, and Overton removed to Nashville. The men who were left displayed more enmity than ever, and, not content with the quarrel within doors, took to libelling one another in pamphlets without. Dudley and Richardson were the chief sinners. The bad blood would not down, and nothing would satisfy the men but a duel, which was

finally arranged. Strangely enough, this absurd method solved the difficulty. They sallied forth to kill, but returned good friends—Richardson with a pistol bullet in his thigh, quite harmless, as it proved—and went on to compound a new faculty. Meantime the poor School had been completely bedevilled and a year lost; but in 1819 another start was made, and for forty years the foundation survived. In 1859, in other times and in the hands of other men, it was finally dissolved, the greater colleges of large neighboring towns having thrown it out of action. But for some twenty years of its youth it did a useful and brilliant work; it graduated nearly two thousand students, roughly equipped for practice, and it carried on its rolls many well-known names.

During those years, from 1820 to 1840, Dudley was the most conspicuous figure in the company of able men who made the School what it was. Charles Caldwell and Samuel Brown were of his colleagues,—names still remembered in the Middle West. In that period the Transylvania institution began to be known beyond the State, and among the young schools of America it seems to have ranked with the first six, — with those of Philadelphia, New York, Boston, Hanover, and Baltimore.

The later history of the Lexington School is instructive. The town was too small and the clinical advantages too few to insure a permanent success in competition with adjacent towns such as Louisville and Cincinnati, but so long as Dudley maintained his vigor the School lived. Finally, however, in 1837, the new College at Louisville proved too attractive for the young and ambitious among the Transylvanians; so, leaving Dudley, who refused to move, they migrated to the larger place. Caldwell led the way and remained for years a power there; then there was Cooke, and Yandell, the most famous of all. In this School were also Cobb, Miller, Drake, J. B. Flint, and S. D. Gross in his early years.

Of all those men, Caldwell was much the senior, being thirteen years older than Dudley himself. He was a vigorous, eloquent, able, opinionated, and often wrong-headed man. He was a North Carolinian of Irish parentage, educated in Philadelphia, and a pupil of Rush, of whom he wrote critically later, opposing especially his views on yellow fever. Many of the early years of his life were devoted to writing rather than to practice, and he became well known throughout the country. His first serious teaching was undertaken on the invitation of the Transylvania School. He was a very busy man, writing, talking, and manœuvring in medical politics all his life. The total mass of his publications was enormous—greater than that of almost any other American—but ephemeral. Of all that he left, his Autobiography only is worth reading.

In 1819 Dudley's best work began, that excellent teaching which made him famous, and his surgical practice grew rapidly. With the early decline and retirement of McDowell he came to dominate the wide, new Western country and was called in all directions far beyond the State. It is not difficult to understand his prominence. No one for a thousand miles around was so well equipped for surgery, and he possessed, besides, that resourcefulness, sound judgment, experience, and mechanical skill which go to make a great operator.

Of his manner and method in teaching enough has been said, and so we must conceive the man an autocrat in his own field for more than twenty years.

His fees were large and his early experiences had made him a good man of business. At the age of thirty-six he married Miss Anna Maria Short, a daughter of Major Peyton Short, and they had three children, his eldest son, Wilkins Dudley, following him in medicine.

In spite of his remarkable eminence during middle life, Dudley's career failed to make a permanent impression.

Just why this was so is not entirely evident. His influence faded gradually long before his death, and with the closing of the Lexington School he ceased to be conspicuous. He had laid aside money and built himself a comfortable country house. Thither he retired about 1850, and, lingering for twenty years in increasing physical and mental debility, survived the Civil War and died in 1870.

It was a painful anticlimax. The profession had almost forgotten him, and the brief record of his old friend and pupil, Yandell, alone remains to tell the story of what promised to be a most useful as well as most romantic life.

CHAPTER XI.

THE NINETEENTH CENTURY. SOME EARLY PHYSICIANS AND THEIR PROBLEMS.

It was a simple task to select the eminent American surgeons of a hundred years ago and to tell why they were great, but to do the same with the physicians is a less easy matter. Not that we lacked physicians of eminence, for have we not read of Benjamin Rush? but the then existing American conditions made a conspicuous pre-eminence and a permanent fame in internal medicine here a most unlikely thing. There was little time or opportunity for closet study and laboratory research, and science was not properly fostered in the universities. The professional physicians were amateur teachers and students. Even the best minds, with rare exceptions, were engrossed with what are called the practical affairs of life. A Haller or a Bichat could scarcely have thriven in such an atmosphere. Daring surgeons who were good anatomists could perform new and brilliant operations with dexterity, but medicine proper offers few occasions for daring or brilliancy. Moreover, the methods of science were misunderstood or despised. The great Cullen himself, and Brown, his plausible rival, founded their practice and teaching on *a priori* reasoning, and Cullen declared it to be the duty of a philosophical inquirer in medicine to control his observations by his theories and not his theories by his observations. With that example, it was small wonder that American practice was largely empirical, though even a hundred years ago the new light was beginning to shine feebly into these dark corners of the earth and the spirit of inquiry and emancipation was abroad.

At the end of the eighteenth century Waterhouse, of

Harvard, introduced vaccination, and Jackson soon after began the practice in Boston. This was two years before Jenner's first famous announcement of his discovery, upon which his paper was immediately reproduced in America, and a careful résumé was published in Mitchell & Miller's *Medical Repository*,[1] the only authoritative medical journal then existing among us.

The novel proposition was accepted much more readily here than it had been in England, and the practice obtained a strong foothold in a very few years.

But, in spite of such sane and eminent men as we have described in former pages, the general practice and knowledge of the times were most lamentable. These facts have been greatly dwelt upon already, especially in describing the conditions prevailing in the eighteenth century; but with the loosing of the democratic spirit in the land, quackery and unlicensed methods of practice became more rampant than ever before. No retrospect of ours can make out a worse case than actually existed, as described by one of the most eminent of contemporary writers nearly a hundred years ago. In 1813 David Hosack wrote,—

"The great disparity in the merits of those who belong to the medical profession is a topic of daily converse and public notoriety. As the high opinion, which in all ages has been entertained of the professors of the healing art, must have been founded not upon any adventitious circumstances but upon the very nature of the profession itself and the abilities and acquirements of those who undertook to discharge its important duties, one seems naturally led to examine the merits and conduct of those who lay claim to a like consideration in the community, and to ascertain upon what grounds they assume a rank and importance among mankind, the reward only of commanding talents, severe application and moral excellence.

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[1] Medical Repository, 1799, vol. ii. p. 255.

"That almost every district of our country abounds with individuals who set up to exercise the duties of practitioners of medicine, need scarcely be stated; how great is the number of them who are totally ignorant of the first principles of their profession and who degrade the noblest of studies into the meanest of arts, cannot have escaped the attention of any who at all regard the interests of society. . . . Though they differ from beasts of prey, . . . yet they wage war with equal success as it regards the destruction of their objects. . . . The inroads and depredations which they commit bid defiance to all calculation. . . . The necessity of something like medical reforms is obvious, and the learned and the liberal in every quarter are called upon in behalf of so beneficial an undertaking. The degraded state of medical science renders necessary the united exertions of all, if we wish to restore the healing art to its wonted dignity. It were not less absurd to expect light to spring out of darkness than to expect that a science, in itself liberal and dignified as that of medicine, should receive any support from the ignoble and the vulgar; that the complicated structure of the human frame and the pathology of disease should be understood by men, who from education, knowledge, and intellect are fit only to discharge the duties of some menial office; that a profession in the attainment of which an expenditure of some wealth and a long and severe application is required should be comprehended by the indolent and those whose attention is directed solely to the acquisition of money, and whose minds are as gross and heavy as the metal for which they toil. By a steady and fearless perseverance, we are persuaded that, in no great length of time the character of our profession will be rescued from the disgraceful condition to which it has been reduced. Let not the mere compounder of drugs, whose acquirements enable him to do little more than to distinguish rhubarb from bark, enjoy all the rights and immunities

of regular college graduates; and as we deem it necessary that a series of years should be spent in order to handle the last and the awl, let us require at least an equal portion of time to be devoted to study, to qualify an individual for the exercise of those duties upon a proper performance of which the lives and happiness of his fellow creatures depend."

Such were the conditions which Hosack deplores, but he proceeds confidently to indicate the remedy—a more thorough education—and to point out the necessity of a higher ethical standard. Indeed, the medical ethics of the time were unhappy, and, even in the best scientific circles, backbiting, innuendo, grabbing, and "sharking" were all too common. Hosack goes on to quote Middleton, who wrote in the same vein forty years before, lamenting the debased state of the profession; and he asserts that in 1813 the conditions were far worse even than those which Middleton described. It is allowed us in this twentieth century to assert, without undue complacency, that in these respects we are better than our ancestors were.

Hosack's description referred most especially to the conditions in New York State, but it is only fair to say that the situation was the same throughout the country. Legislators were too busy with the needs of their seething, expanding communities to concern themselves much about matters pertaining to the professions and to higher education; so that, lawyers only excepted, one found the great mass of men—doctors, ministers, teachers, architects, engineers, carpenters, masons, and craftsmen of all descriptions, outside of the few great centres—to be self-taught, crude, blundering, and inexpert.

Of course this brought all sorts of so-called skilled service into deserved popular contempt and greatly developed the already existing feeling that one man was about as good as another in whatever line of work his fancy might lead him to experiment. In those days the serious, stead-

fast following of one occupation through life was the exception rather than the rule; jacks-of-all-trades were everywhere found; and one saw, without the slightest surprise, farriers turned doctors, lawyers turned ministers, ministers turned farmers, and farmers turned statesmen. Specialists and experts were almost unknown, except among the old-fashioned colonial artisans, among the clergy and the politicians. The common doctors were both shrewd and clever; and, following the lead of the best educated in the profession, they built up abundant theories, which they loudly preached. In these days we are told of the decline of sensibility. Truly, sensibility seems to have been a rare trait among American doctors a hundred years ago. The best standards were low: one has but to read the lives of some of the men memorialized by Thacher in his "American Medical Biography" to appreciate that. The most preposterous claims and actions, if credited to a man loud enough in his religious professions, were apt to be tolerated and approved.

One of the most curious examples of that kind—an episode in which the principal actor was an entirely respectable man—might be called "The Legend of Perkins and his Metallic Tractors."

Elisha Perkins was a shrewd son of Connecticut, born about the middle of the eighteenth century and crudely trained for the practice of medicine by his father, himself an excellent physician for his time. "Doctor" by courtesy, as were most of his contemporaries, the younger Perkins became a successful and widely known practitioner. Six feet tall, handsome, of commanding personality, and full of that intangible something which women call charm and men call magnetism, he became in a few years one of the most popular and successful doctors in Connecticut. As Thacher puts it, "He was esteemed as a man of strict honor and integrity of character."

He was greatly impressed during his career with the

sense of benefit and well-being which his forceful presence and kindly ways imparted to his patients, especially when he had occasion to lay his hands upon them in the course of making examinations or feeling the pulse. This effect he thought to be due to some occult magnetic influence, and, bearing in mind Dr. Franklin's researches, he persuaded himself that, by combining together certain metals, a more efficient magnetic or electro-therapeutic agent might be secured than by the mere human touch. After experimenting for several years, he developed an apparatus that satisfied him. This consisted merely of "two instruments, one having the appearance of steel, the other of brass;" the ends were brought to a point, and were applied to the patient by drawing the points, in a downward direction, over the affected parts for a period of twenty minutes.

These were the instruments which became famous for a period and were known as "Perkins's Metallic Tractors." He took out a patent and proceeded to put his goods upon the market. That is the only circumstance that interests us now in connection with Elisha Perkins,—the patent and the exploitation. It is in itself a little sermon on the standards of the time. The man does not appear to have lost caste. He gained many followers and was consulted by many physicians of high standing.

We read of his travelling up and down the country, lecturing and practising and making a great commotion. He asserted that the remedy was especially suited to local inflammations, rheumatism, and pains in the various parts; all of which is meaningless now. The fame of the man reached Europe. In Copenhagen a jury of respectable physicians investigated the use of the tractors and published an elaborate report more or less favorable; indeed. they named the practice *Perkinism*. The popularity of Perkinism grew for several years; its inventor became rich, and died at the height of his prosperity. In 1804 his

son established the Perkinean Institution in London, with the Right Honorable Lord Rivers as President and Sir William Barker as Vice-President. After the death of its founder, in 1810, the institution sunk into neglect and finally disappeared.

Now, all this business of the tractors, which is obviously a mere matter of suggestive therapeutics, made a very great stir. The *modus operandi* of the cure was the subject of much ingenious theorizing, and endless disputes and a great variety of ponderous philosophizing were expended upon the shrewd Connecticut gentleman and his lucrative invention; but the end came, as it was bound to do, and the world forgot it, as it has forgotten thousands of similar delusions before and since. The episode points a moral; it illustrates the times, and serves to show why it was that in such an era of empiricism and popular credulity the doctrine of homœopathy, which soon after arose, should have gained so strong a hold upon a weary, long-suffering, and maltreated people.

Much has already been told of the efforts made by competent men in the profession for the elevation of their calling and its emancipation from such conditions as Elisha Perkins illustrates. The great surgeons did much, but more than to all others, probably, do we owe it to the rare medical publicists of the time that actual advancement gradually was made. Until very recent years medical literature in America has been scanty and of small circulation; American text-books have been rare, and exhaustive treatises almost unknown. For many years most of the thought and expression of our scientists was voiced by means of the medical journals,—quarterlies usually,—which have constantly been growing in number and importance. Our first journal was composed of selections and translations from the French *Journal de Médecine Militaire,* Paris, 1782 to 1788. The American edition was published in New York in 1790, and made a respect-

able octavo of one hundred and twenty pages. Then there was that admirable *Medical Repository* of Elihu H. Smith, S. L. Mitchell, and Edward Miller, which ran as a quarterly from 1797 to 1824, and proved to be of very great service to the good cause. Of shorter life, but equally important while it lasted, was the *American Medical and Philosophical Register*. It was in existence from 1810 to 1814, and, as its title indicates, was not devoted to medicine exclusively, but contained other miscellaneous papers of varying scientific interest; indeed, it is most agreeable and instructive to-day. The chief editor of this journal was David Hosack, one of the most enlightened, conspicuous, and able men in New York a hundred years ago,—an accomplished physician, a surgeon of no mean attainments, and a strong, vigorous, public-spirited citizen. His name appears constantly in the scanty medical literature of the period, and his career calls for more than passing notice; indeed, with the exception of Rush, I doubt whether any physician of that time was better known to the American profession.

David Hosack did not belong to the Revolutionary doctors. He came to manhood after the war was over, and is to be classed with the new and progressive generation of which Elihu Smith was so brilliant an exemplar. He was born in New York City on August 31, 1769, the very year in which the first New York medical degrees were conferred upon Robert Tucker and Samuel Kissam.

Hosack's father, Alexander, a cadet of good Scotch family, had come out in 1758 as an artillery officer with Amherst, and after the French war had settled in New York, where he married Jane Arden in 1768. David Hosack was their eldest child, and was thirteen years old at the close of the Revolution. He was a bright, intelligent boy and well educated, being thoroughly grounded, especially in the Greek and Latin classics, the reading of which he kept up through life; but he was not precocious.

He was seventeen when he entered Columbia College, where he remained but two years. While there he began the study of medicine, as a side issue, in the office of Richard Bailey, a well-known surgeon of the day. That was in the summer of 1788, and Bailey it was who, as we may remember, had been allowed the use of room in the unoccupied New York Hospital for purposes of dissecting and operating. So young Hosack was concerned in the affair of the "Doctors' Mob,"—as an innocent student only. He ran away with the rest of the fraternity, was well hustled, was knocked down in his flight, and was only saved from serious injury by the activity of a kind neighbor present, who picked him up and brought him home.

Hosack's study of medicine was very brief at that time. He was a thoughtful young fellow, and, being determined to be a doctor, looked about for the best means of becoming a good one. Profiting by the written words of such well-known teachers as Morgan and Middleton, he saw that a thorough preliminary education was essential, and as the Columbia College of the time did not offer what he wanted, he went to Princeton the next year, passing, by severe study, from the Sophomore Class in New York to the Senior Class at the New Jersey College, whence he was graduated Bachelor of Arts in the autumn of 1789.

Immediately on leaving college Hosack returned to New York and entered seriously upon the study of medicine under former teachers of the old Columbia School. Bard was still vigorous and useful among them; indeed, he was at the very height of his fame, and his courses in midwifery, gynæcology, and pediatrics were great attractions to New York students. The other conspicuous teacher was Wright Post, who lectured on anatomy and physiology; he was a capable surgeon and continued active as teacher and operator well into the next century. During those years, from the close of the war to 1792,

the Columbia School did not exist, even in name. The old professors and various others who gave medical instruction did so mostly as private individuals, though they utilized the New York Hospital and the almshouse for clinical purposes. At the best, the teaching was unformulated, and after a year of it Hosack became discouraged with his progress, as he had been with his college work two years before. So he went to Philadelphia. It was before the days of Physick, and Rush was the most conspicuous man there. One year of Philadelphia sufficed Hosack, and he received the M.D. degree in 1791, at the age of twenty-two.

So far his course had been that of most of those others whom we have recorded, but now he determined to strike out in a new line. He was not yet fired with the high ideals which came to his more mature years, but thought only of a wife and money-making. Accordingly, he married Catherine Warner, a lady of Princeton, whom he had known during his college course. Then, looking about for a habitat, he resolved to settle at the national capital. This, be it remembered, was during Washington's first administration, while the city bearing his name was as yet unknown to geographers. However, wise men were saying that the capital would be established at Alexandria in Virginia, and thither, with national ambitions, went Hosack to be ready for the new régime. It was an interesting idea, but it quickly came to nothing. The existing field was small and after a year its prospects seemed unpropitious, for there was no sign of the expected national movement. Practice was ample, but fees were almost nil. Here, indeed, was a sorry outlook for a gifted young man from New York, with a wife to support and an infant son to rear. So he dropped it all, wisely, before it was too late, and hurried back to his native place. It is an interesting fact about Hosack that, the Alexandria experience excepted, every move he made was for the better; and

every move was by his own prompting, without advice from father or friends.

Arrived in New York, he concluded that his modest attainments would go but a little way in the keen rivalry of that growing town, so he determined to go to Europe to learn to be a better doctor.

As he himself writes, "Observing the distinction which our citizens at that time made between those physicians who had been educated at home and those who had additional instruction from the universities of Europe, and knowing how little property I had to expect from my parents, I found that my chief dependence was upon my own industry and unceasing attention to the profession I had chosen as the means of my subsistence; my ambition to excel in my profession did not suffer me to remain insensible under such distinction." So the courageous young fellow, with a very thin purse and a very sore heart, left wife and child with his parents and started off for a two years' sojourn in Europe. Though poor in pocket, he had many good friends, who took pains that he should make his way into an agreeable society abroad. Accordingly we find him, on the night of his arrival in Liverpool, installed as a guest at the house of William Renwick, where he met a company of prominent medical men and passed an evening "in the society of some of the choicest spirits," among others, Robert Burns. "After supper, the toddy passing freely round, he gratified us by singing one of his own songs." For the young man that was indeed an auspicious introduction to the home of his ancestors. Then to Edinburgh, and the instruction of the well-known men there, of whom we have already heard so much.

It is a fact characteristic of the times, that, with the exception of John Warren and Elihu Smith, all of the better-known American doctors enjoyed privileges of education similar to those of Hosack, and as we follow their

early lives the same old story constantly repeats itself. Hosack had other advantages, however, like those enjoyed by Mott. He was introduced to the best of the kindly Edinburgh society, which made the most of budding ability, and in democratic fashion received it at their comfortable dinner-tables. Great lawyers, doctors, divines, and writers became familiar to Hosack in the Edinburgh days, and the broad culture which he there attained made of him a most delightful and valuable man in after-life. Even a hundred years ago some feeble specializing in medicine had begun, but with the movement Hosack was not in entire sympathy. He believed in that article of our modern creed which teaches that a man should know everything about something and something about everything else. A man broad in wisdom, he came to know life, which, after all, is the *summum bonum,* if the knowledge be applied.

After a year in Scotland,—a year spent in travel as well as in study,—Hosack went south to London and entered St. Bartholomew's Hospital as a pupil under Sir James Earle, John Hunter's son-in-law. Hunter died a few months after this, and Hosack records the fact that he had the satisfaction of attending that great man's funeral. In London, as in Edinburgh, Hosack's journal is a record of names great in the history of medicine. Hunter and Cline, Cooper and Abernethy, Babington and Smith, Banks and Marshall, Pearson and Robertson are a few of those whom he mentions as having known well. He followed general medicine and surgery, midwifery, anatomy, and botany, and communicated to the Royal Society a paper entitled "Observations on Vision," for which he received the thanks of the Society.

Meantime, the young man had not forgotten how to play. *Desipere in loco* was part of his scheme, in spite of separation from wife and home; so he consoled himself with such society of men and women as was to be found,

worshipping at the shrine of the goddesses, Mrs. Siddons, Mrs. Pope, Miss Farren, Mrs. Eden, Mrs. Jordan, Miss De Camp, and those other great stage lights of whom our grandfathers used to tell. Those were famous and parlous times. George Washington presided over us, William Pitt guided Great Britain, the Prince Regent was still young, the poor French king and queen were having their heads cut off, and young America abroad was learning many things.

In 1794 Hosack went home, and, as luck would have it, found abundant material for practice during the voyage of nearly eight weeks. Typhus broke out and raged fiercely among the passengers, and Hosack, being the only doctor on the ship, was kept busy for weeks with these novel hospital duties.

Among the appreciative passengers was a Mr. Law, a wealthy Englishman, brother to Lord Ellenborough. This gentleman conceived a very high opinion of young Hosack, then but twenty-five years old, and on their landing in New York he made it his business to push his protégé's fortune by introducing him to the great of that day. Curiously enough, Alexander Hamilton and Aaron Burr were two of the men whom Hosack thus met, and they both thought so well of him that they put their families under his care. So he once more took to himself his wife, —his son had died during his absence,—secured a house, began practice, and was greatly successful from the outset. In that first year his professional income was fifteen hundred dollars,—a very large sum for the first year, even in these more liberal days.

From this time until his death, thirty-six years later, Hosack was probably the best-known, the most popular, the most accomplished, and the most useful physician in New York. Like all the other doctors of his generation, his best energies were given to practice, and his methods were of the best; but he did other things of more per-

manent value to the community, and it is for these that he deserves recording.

He was an example, by reason of his culture, his learning, his charity, and his public spirit, in an age when those qualities were uncommon in the American profession; he was a teacher and a promoter of good medical schools; he was an admirable writer and a courageous and untiring medical reformer.

Says Herz, "A man can be neither a philosopher nor a physician by imitation or by rules, but by native genius alone." Hosack seems to have been both a philosopher and a physician, and his biographer quotes Vogel as saying, "Perhaps there is no science which requires so penetrating an intellect, so much talent and genius, so much force of mind, so much acuteness and memory, as the science of medicine." These qualities the eulogist applies to Hosack.

He was a man of fine, bold appearance, forceful and kindly, with a sonorous voice, keen expression, abundant sensibility, and contagious sympathy. He seems to have been without any jealousy in his make-up; for, unlike many other eminent physicians before and since, he made his intimates among his equals and contemporaries instead of running off to a sympathetic audience of hero-worshipping juniors. All men of real ability were worth his while and became his friends.

It is needless to say that he was a tireless worker—all the men who succeed in medicine are that; but, like his friend and contemporary, J. C. Warren, he was methodical and economized his time. He never cut his lecture hour and he never came late. He was no bore. The students seem to have liked to hear him. He was opinionated and outspoken, and in those days of many theories and few text-books there was abundant opportunity for the didactic lecturer to make partisans of his pupils as well as to instruct them. I cannot see that he added to the sum of

human knowledge any medical thoughts of permanent value, but he grouped into comprehensive form the best thoughts of his time, and saw with some clearness that science must rest on accurately observed and recorded facts. In that he was advancing distinctly,—getting beyond the class of Hoffmann and Cullen, Boerhaave and Brown, and even of his friend Rush, who could never quite clear himself from the fallacy of twisting his facts to fit his theories. Hosack was an eloquent champion of theories, but his theories were founded on physiology and anatomy, on study and observation.

In 1797, three years after his return from London, when but twenty-eight years old, he was given a professorship, being appointed to succeed William Pitt Smith in the chair of Materia Medica at Columbia. This was his first distinctly medical teaching; but he had already, for two years, held the chair of Botany, and now he continued as incumbent of both.

Those were the fallow days of the Columbia School. Medical education in New York was undergoing readjustment; the classes were small and the course ineffective; indeed, for nineteen years, from 1792 to 1811, but thirty-four students were graduated. During those years Bard and Hosack were the most active of the teachers, but their efforts were paralyzed by the existing conditions. It was at this period that Hosack established the Elgin Botanical Garden, near the city, on the road between Bloomingdale and Kingsbridge. It was an enterprise intended to make familiar and popularize the study of botany and to collect into one place the native plants available. Eventually the garden disappeared, after having been for many years consigned to the authorities of the College.

In 1807, on the founding of the College of Physicians and Surgeons by the University of New York, Hosack was made, at first, Professor of Botany and Materia Medica there; soon after that he became Professor of

Surgery and Midwifery; and finally, in 1811, on the reorganization and union of the two schools, he filled the chair of the Theory and Practice of Physic and Clinical Medicine.

So we see him in the short space of sixteen years holding six professorships and lecturing upon the most diverse subjects. And his lectures were good, if one may judge by tradition and his voluminous writings. But it was medicine proper that he cared for most; the earlier fields of his endeavors he tilled carefully, but, save botany, without special enthusiasm, and what he had to say was largely the echo of his excellent foreign teaching. In clinical medicine, however, he made a great impression on his classes, and his diagnoses were brilliant, if not always sure.

Like so many of those ancient men, quick perception and an intuitive tact had to take the place of many of our modern methods of precision; but it is surprising how just, often, were the conclusions drawn.

Though Hosack originated no new surgical procedures of value, he was an excellent surgeon and introduced to America several good things from Europe. Up to this time no American had tied the femoral artery for aneurism. Hosack did in 1808. The year after his return from Europe he introduced the method of treating hydrocele by injection. He wrote several first-rate papers on diverse surgical subjects: Glossitis, Tetanus, "Tic," Anthrax, Tumors of the Breast.[2]

In operations he insisted upon the importance of leaving wounds open to the air in order to check hemorrhage,—a method advocated later by Astley Cooper and Dupuytren. Hosack's surgical work was, however, of no special value; his heart was not in it; and after 1808 he devoted himself, for the rest of his life, almost exclusively to medicine.

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[2] Medical Essays, vol. ii.

Though controversial in his medical teaching, Hosack was not bitter or discourteous. Among other things, he had seen much of yellow fever, and had convinced himself that it was a contagious disease. This he had said and written, taking sides against the final opinion of his old master, Rush. The controversy, which would have led to enmity between most physicians of that time, had no such effect on the relations of these two distinguished men, and the following cordial letters from Rush are pleasant evidences of professional amenities, while they throw an interesting side light on the ethics of the time.

"PHILADELPHIA, August 15th, 1810.

"DEAR SIR:—

"I shall this day put into the hands of Mr. Humphreys the Spanish translation of my account of the yellow fever in 1793, and a manuscript copy of Dr. Mitchell's letter on the yellow fever, accompanied with a letter from Governor Colden upon the same subject. They were found among the papers of my old master, the late Dr. Redman, and were given to me by his daughter since his death. The copy from which Dr. Coxe printed an extract of Dr. Mitchell's letter perished in the printing office to which it was sent for publication. I beg you would return the copy herewith sent with the Spanish translation, which accompanies it. I thank you for the liberal manner in which you have dissented from my opinions upon the subject of your present inquiries. In the laudable attempts which are now making to improve the condition of mankind, I wish a society could be formed to *humanize* physicians. General Lee once said, 'Oh! that I were a dog, that I might not call man a brother!' With how much more reason might I say, 'Oh! that I were a member of any other profession than that of medicine, that I might not call physicians my brethren!'

"I have lately treated a case of anthrax with bark and other cordial remedies, agreeably to your practice, with

success. The inflammatory action of the blood-vessels, in that disease, partakes too much of the soap bubble to admit of the common antiphlogistic remedies.

"Our city is unusually healthy. My wife and daughter are now in Jersey. Were they here, I am sure they would unite in cordial respects to you and your excellent lady, with, dear sir,

"Yours sincerely,

"BENJN. RUSH."

"June 20th, 1812.

"MY DEAR FRIEND:—

"Our Philosophical Society meets but once a month in summer. They met last evening. Their next meeting will be on the *third* Friday of next month, which is, I think, on the 17th of the month; on which day, or before it, I shall expect to have the pleasure of taking you by the hand as my guest. All my family unite with me in requesting you to make our house your home while you remain in Philadelphia. Let us show the world that a difference of opinion upon medical subjects is not incompatible with medical friendships; and in so doing, let us throw the whole odium of the hostility of physicians to each other upon their competition for business and money. Alas! while merchants, mechanics, lawyers, and the clergy live in friendly intercourse with each other, and while even the brutes are gregarious, and

'Devil with devil firm concord holds,'

to use the words of Milton, physicians, in all ages and countries, riot upon each others' characters! How shall we resolve this problem in morals?

"With love to Mrs. Hosack and Miss Mary, in which all my family join,

"I am, dear sir,

"Your friend and brother in the republic of medicine,

"BENJN. RUSH."

In one of his introductory discourses[3] Hosack lays down for his students his own estimate of the nature of medical studies and the requirements for the pursuit of medicine. The practice of physic must be preceded by an attainment of principles, through "*accurate observation, judicious experiment,* and *cautious induction from the facts* which *they present,*" and he dwells at length on the great importance of clinical experience. "The discernment of a disease is only to be acquired by long and habitual observation at the bedside of the sick, for it frequently happens that not only the symptoms, but the causes of disease, are so concealed that they escape the observation both of the patient and the bystander; and, even by the physician, are only to be discovered *by habitual attention to the phenomena of health,* as well as the symptoms of disease . . . though books of practice may furnish the description of the symptoms of disease and faithfully delineate the more *prominent* features by which they are characterized, there are certain nicer shades of discrimination which frequent converse with the sick can alone detect: for diseases, like plants and animals, have their peculiarities of character which no system of nosology will supply, no description, however voluminous or minute, can impart, which no medical Lavater has yet delineated and with which practice alone can make us acquainted."

He then goes on to give a pleasant account of the growth of medicine, and, beginning with Hippocrates, to place our medical heroes in their appropriate niches. He closes with a eulogy of Rush, who, with Sydenham and Boerhaave, is made to shine as one of the bright particular stars.

What one feels in reading Hosack's works is not only his acumen and firm grasp of each particular subject, but his broad humanity and his philosophic view of medicine,

[3] American Medical and Philosophical Register, vol. iv. p. 305.

as of life. Though an accurate student, he believed "science for science's sake" to be an untenable proposition; that, in the long run, knowledge that leads nowhere is but half knowledge; and that a thorough knowledge of one branch *and of no more* is not full knowledge.

In such thoughts he was generations ahead of his time, and he would doubtless have agreed with those among us who to-day believe that strict specialism leads to mental indolence; that the man who confines his interest to his own little daily round grows ineffective even for the task before him.

Hosack was known as an eminent citizen as well as a popular teacher and a good doctor. He was what we flippant moderns would call very much of a good fellow. Certainly good fellows were his warm friends, and it is pleasant to read of Alexander Hamilton's devotion to him. Aaron Burr also was his faithful patient, though on that side there was no special intimacy. Fortunately, science disregards politics, else one scarcely could tolerate the friend of Hamilton caring for Burr and dedicating volumes to such politically surprising persons as Brockholst Livingston and De Witt Clinton. The ingenuous frankness of the address to the last is refreshing: "The editors are not influenced by considerations of a political nature—in that respect they have no hesitation to avow their allegiance to other principles than those which you profess—but they offer a tribute to the talents and liberality which you have manifested in promoting the interests of science."

To none of these men was Hosack more attached than to Hamilton, his early patron and friend while the latter lived. Hamilton felt for Hosack the grateful devotion with which the old-time doctors managed to inspire their patients for the life of a child saved, and the last service which Hosack rendered him was on the field in the duel with Burr.

Hosack's son,[4] who wrote a dreary sketch of his progenitor, says that his father possessed and deserved the confidence of the community not only for his ability, but for his urbanity of manner. Now, the "urbanity" of the younger Hosack, like the "sensibility" of Jane Austen, is a quality little esteemed by the modern world; but, disregarding those pleasant old adjectives, it is certain that folk did like David Hosack, and that, for the credit of medicine, he was the right man in the right place. He thought well of men and women; he was unwearied in suffering their prolix tales; he had abundant genuine human sympathy; he was charitable towards all where charity was due; he was outspoken betimes; he was capable of a fine, impetuous indignation on occasion; he led a clean life; and he was beheld of all men.

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[4] Hosack's son published the following account of the composing of Washington's Farewell Address and Hamilton's concern with it:

"In looking over my father's correspondence, I found the copy of a letter in his handwriting, addressed to his friend Dr. James, of Philadelphia, in reply to one requesting information from him as to the authorship of the 'Farewell Address of Washington,' which had been attributed to General Hamilton. Dr. James had been induced to seek this information from my father, from the well-known intimacy existing between him and General Hamilton, and, as every fact concerning the history of these two distinguished personages—General Washington and General Hamilton—will be of the greatest interest to future ages, I deem it important to give publicity to it here, by subjoining a copy of it.

"'My dear Friend:—

"'I am gratified by your communication of the 6th inst., to learn that Mr. Rawle has received satisfactory information from Governor Jay upon the subject of General Washington's Farewell Address, and which I believe you will find to correspond with the statement I gave you verbally when I was last in Philadelphia. As I then stated to you, I happened to be at the house of General Hamilton, making a professional visit to one of his family, on the morning he received from General Washington the outline of his contemplated address, written upon several sheets of foolscap paper, and requesting General Hamilton's opinion and views relative to that subject. I shall never forget the gratification displayed by the General upon receiving this high compliment from his great chief. I was after-

His interests, like those of Rush, Fothergill, and J. C. Warren, were numerous; he founded a humane society, he helped to remodel the Dispensary; he was an early advocate of vaccination; and he urged vigorously the establishment of municipal contagious hospitals, national quarantine regulations, and a proper system of city drainage.[5] He pronounced a eulogy on his deceased friend, De Witt Clinton, for which he was warmly thanked by Kent, Story, and Marshall. He kept open house in a fashion lavish for the time, and he gave entertainments of the kind known to our ancestors as "Conversaziones." Such diverse characters as the Abbé Correa, Michaux, Sir John Franklin, Dr. Richardson, Captain Sabine, Captain Basil Hall (our contemptuous critic), Washington Irving, J. Fenimore Cooper, Bryant, Hal-

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wards informed by my friend, the late Nathaniel Pendleton, one of the executors of General Hamilton, who at the time possessed some of the General's papers, that he had seen the valedictory address in the handwriting of General Hamilton, by which it appears that the suggestions and alterations which he had made were so numerous and so extensive as rendered it necessary for him to transcribe the whole. This fact, I believe, has been the origin of the report that the whole production had been originally written by General Hamilton.

"'Any person acquainted with General Washington and the productions of his pen, must have known that he was distinguished for those powers of mind, that correctness of judgment, that decision and pride of character, that original thinking and readiness in committing his thoughts to paper, and in which his simplicity and neatness of composition may almost bear comparison with the most classic writers of the age, that he would not have committed a subject of that magnitude exclusively to any man living. But while the same ability would prompt him to execute the outline, his high respect for and confidence in the distinguished abilities of his friend Hamilton, long a confidential member of his family, would induce him to avail himself of so important a document as the legacy he has left to his beloved country, and indeed to the world.

"'I am, my dear friend,

"'Very truly yours,

"'David Hosack.'"

[5] Medical Police, pp. 30 and 31, in Medical Essays, vol. ii.

leck, Chancellor Kent, Emmet, Silliman, and many others are said to have crowded his drawing-rooms. It must have been an interesting company; they all liked their host and did not interfere with his busy life.

Hosack was three times married. We have seen the end of his young first wife and son. When but twenty-eight years old he married again,—Mary Eddy,—and the two had nine children, five of whom survived him. Then, late in life, when he found himself again bereft, he married for his comfort Magdalena Coster, an amiable widow.

With all his activities, his generosity, and his heavy expenses, Hosack managed to accumulate property, for he was a good man of business. In his case the saying that "professional men live well, work hard, and die poor" was not altogether true, for he charged well for his services where charges were proper, and at sixty he was able to retire to a comfortable country place on the Hudson. There he remained mostly for the last six years of his life, and he died, still comparatively young and vigorous, in 1835, at the age of sixty-six.

Contemporary with Hosack, though some seven years his senior, was Nathan Smith, of New England. In his way an even stronger character than the former, he rather suggests that vigorous pioneer of the West, Daniel Drake.

Smith was the son of a small farmer, and was born in Rehoboth, Massachusetts, on September 30, 1762. While he was an infant his parents emigrated to Vermont, then in the wilds, but recently relieved of the great French invasion which ended with the capture of Ticonderoga by Amherst in 1759. In the same year came the fall of Quebec and the death of Wolfe, followed four years later by the Peace of Paris and the end of the old French War. Immediately after the peace, when the parents of Smith settled at Chester, in the southern part of Vermont, that

region was still a wilderness, and the people were frontiersmen as much as were their kinsfolk of the Ohio Valley. The primeval forest still covered the hills, the clearings were few and distant, wild creatures abounded in the woods, and the Indians of whom Cooper tells trapped there zealously as the fancy took them.

It was a stimulating life for the growing lad, and when he was but fifteen years old there came into it that fearsome expedition of the luckless Burgoyne and the famous American defeat of arms, when Arnold won laurels for Gates at Saratoga. Not long after this young Smith himself saw some desultory service as a volunteer in that rather useless body, the State militia. He was stationed with his command on the Canadian border, and led an active existence for a few months, but was never in any immediate danger save once, when a hostile Indian who was a poor marksman shot at him from behind a tree. The bullet did not find him. One of his biographers, with singular lack of humor, remarks in parenthesis that "he frequently alluded to hardships and privations which he endured, while encamped in the wilderness, with few of the necessities and none of the conveniences of life."

Smith's son, Nathan R. Smith, the distinguished Professor of Surgery in the University of Maryland, says of his father that in early life he showed no leaning towards science, nor thought beyond the rough existence which his father had always known. His education was defective, and went no further than enabling him to teach the rudiments in a remote country school. Even the loyal son failed to appreciate the incalculable value of that early life in the woods, the best possible training for an active-minded lad. It was there, in the things of nature, the craft of the Indians, the habits of the wild creatures, the signs of the seasons and the weather, the growth of trees, crops, and flowers, and the thousand other fascinating tokens which appear to him who waits open-eyed and

receptive,—it was there that he acquired that wonderful facility of observation and deduction for which he was famous in after-life.

Smith was twenty-four years old when, by chance of frontier existence, he saw a surgical operation at the hands of one of those rare competent men whom the rough country sometimes knew. The surgeon was Josiah Goodhue, of Putney, Vermont. Promptly, Smith was fired with the ambition to know more of the mysteries of which he had had a glimpse, and he applied to Goodhue to make a doctor of him. Most fortunately for him and for us, the elder man declined the task unless Smith would first push his education so far as to qualify for the Freshman Class at Harvard College. He thought that that would be the end of it, but a year later Smith appeared with the condition fulfilled. Goodhue was as good as his word; he took the young man as a pupil, held him sharply to his task for three years, and turned him out at the end, in strong, rough fashion, qualified for the country doctor's life. Then Smith settled himself at practice in the town of Cornish, across the Connecticut River from Windsor, Vermont.

From the outset he was a thinker, and we know that he was a critical observer. Those qualities led him to two conclusions: that he himself knew little of the science of medicine, and that the doctors about him knew still less. But the crassness and ignorance did not appall him. He resolved, with a tenacity which increased through life, to better all that. He saw that the inefficiency of his fellows was due to lack of opportunity, not to lack of brains. They were smart enough, as our New England people say.

At that time, be it remembered, there were but three medical schools in America, the Pennsylvania School, the moribund New York School, and the infant Harvard School. Smith's first move was to visit the Harvard

School for a term and extract what he could from it. He had been practising some two years in Cornish and realized fully wherein he was weak, so that the experience at Harvard meant more to him than to most. He remained there one year, highly regarded by his teachers, especially by John Warren, the enthusiastic Professor of Surgery, and he was graduated Bachelor of Medicine in 1790, reading at the Commencement exercises a dissertation on "The Circulation of the Blood." He then returned to Cornish to practise and to scheme farther improvements.

As respected qualified doctors, the backwoods districts of New Hampshire and Vermont were in the deplorable state common to the whole country, and Smith was prompted to work for the reforms which were absorbing those others of whom we have read: Morgan, Bard, Rush, Hosack, Warren, and the like. Schools were few, distances to travel very great, and money was scarce everywhere. A new government was in process of establishment under the direction of Washington, and Morris and Hamilton were struggling with the question of our national finances. It was a poor time for the promoting of educational enterprises, but Smith determined to try his hand at it. If he could start a little school in Northern New England for the economical training of country doctors, the leaven would work in time; men with some degree of equipment would gradually be sifted through the community, and in the resulting struggle the fittest would survive and the old-time incompetents eventually die off or be pushed to the wall.

Wisely, Smith saw that a private school, such as he might conduct, would never succeed at that time and place, so he turned naturally to the near-by College of Dartmouth, and, under its shelter and the warm encouragement of President Wheelock, established his Medical Institute.

When it came to working out the details of his plan, Smith found that he himself was the only available teacher; and, rising to the task and his opportunities, he straightway undertook all the branches. Practically he assumed the chairs of Medicine, Surgery, Anatomy, Therapeutics, Botany, Physiology, and Chemistry. He had now been practising some six years in Cornish, and had struggled into the possession of a small sum of money. When he saw the position in which his new duties had placed him, he without hesitation threw up his practice, postponed his Medical Institute for a year, pocketed his savings, and sailed for Europe for study, the better to qualify for his coming work. It was in December, 1796, that he went abroad, and he landed in Glasgow early in the following January.

His experiences in Europe were the usual ones; lectures and hospital clinics at Glasgow were followed by similar work at Edinburgh, under Monro and Black. Then in April he went up to London to see the practice there. His stay in Great Britain lasted only about six months altogether; but he went there a veteran practitioner with definite aims in view, and, having attained them, hastened home to New Hampshire and President Wheelock. Soon after leaving London, through the interest of Lettsom, he was elected a corresponding member of the London Medical Society, and that, too, although he had not yet obtained the degree of Doctor of Medicine.

While in Edinburgh he had not been unmindful of his own infant school, but had sent out consignments of medical books for the foundation of a library there. From London, too, he had sent chemical, anatomical, and surgical apparatus, though there was no kindly Fothergill to help him; so that, on his return to Dartmouth and the opening of the school early in 1798, there were in hand some few necessaries with which to begin his scien-

tific housekeeping. At the following Commencement he was given his first reward, the doctor's degree from Dartmouth.

For the next twelve years, or until he was forty-eight years old, he labored zealously in his new field, and he labored alone. It was a great feat. He knew all the students, he gave all the lectures, he quizzed all the classes, he held all the examinations, and he recommended for the degree. He was demonstrator, surgeon, physiologist, chemist, and instructor in internal medicine. And he did all these things well, as his writings and his accomplishments show.

At the outset he had about twenty students under him, but these soon increased, until towards the end of the period some sixty men attended his lectures. His instruction was pungent and practical. As he himself says, he had no time to be a bookman. Through life his knowledge of medical literature was small; but his experience was enormous; his observation instant, keen, and accurate; his deductions sound and logical; his expositions convincing. He was full of expedient and common sense, very modern in his way of looking at disease, never influenced by dogma, sparing in his use of drugs, and an early exponent of the growing belief in the self-limited character of many diseases. With all this, one thinks of Nathan Smith as the ideal country doctor: strong, untiring, devoted; travelling a great circuit of hundreds of miles in that wild, rough northern land; a faithful servant to his people, a tower of strength to a hundred consultants.

Dartmouth carries on her rolls a splendid list of alumni, but to most of the world two names are the conspicuous ones: Nathan Smith and Daniel Webster. There was twenty years' difference in their ages, but the two men worked together at Hanover in common during three years,—the elder mature man as teacher, the younger as

student,—until 1801, when Webster was graduated; and a warm appreciation and friendship was there established which it is pleasant to think lasted through life.

In 1810 Smith's teaching labors were somewhat lightened by the accession to the little faculty of Cyrus Perkins, who was appointed to the chair of Anatomy, which he held until called to New York several years later.

So the good work went on until a strong, permanent school had been built up, the profession of Northern New England led out of the wilderness of ignorance, and Smith's great abilities recognized and admired throughout the land.

In 1813 the inevitable time came when a wider community claimed him. In that year Yale College was founding her Medical School, and Smith was called to a chair in the New Haven Institution. He had founded and developed one school well, here was his opportunity to repeat the feat. So he yielded to the demand and went to Yale as Professor of the Theory and Practice of Physic and Surgery. There again he took up his busy round,—teacher, practitioner, and consultant,—and there he labored sixteen years until his death, in 1829.

During those years some of his excursions took him very far from home. While continuing his lectures in New Haven he gave a course at Dartmouth, where his old friends still claimed him; he also gave lectures at the Vermont University in Burlington, and when the Medical School of Bowdoin was opened, in 1821, he assumed charge of it, conducted it successfully for two years, and gave it an impetus for which it is still grateful.

Nathan Smith was the most famous, perhaps the only famous physician and surgeon combined that we have produced, for his fame lies in both fields. He wrote a treatise on typhus fever, or typhoid, as we should more properly call it, which has become a classic and should be read to-day by every medical student. The style is

delightful and homely. The essay is full of honest information and shrewd advice.

He draws a picture of the disease which no student could forget, and he does it all without recording a temperature, for the clinical thermometer was then unknown. But the insidious onset, the beginning discomfort, the malaise, the headache, the backache, the soreness, the lassitude, the loss of time-sense, the increasing delirium, the various manifestations connected with the excretory organs, the occasional hemorrhage, the sudden collapse, the slow convalescence, the relapse, the return to health, the enormous appetite, and the gain in weight —of all these things he tells most graphically, but in few words. And then the treatment—truly we have improved little on what that old man did. He fed the patient largely on milk, he gave him to drink copiously of clear water, he stimulated him at times, he withheld strong drugs, he kept him in a cool, well-ventilated room, and he drenched him frequently with cold water when the fever ran high. It is a refreshing tale.

Not content with saying and writing these things on typhoid, Smith must needs turn his attention to ovariotomy. In four short pages he tells modestly of an operation performed by him, and leaves his son to add a brief foot-note. Yet it was a very remarkable pioneer deed. It was done in 1821, twelve years after McDowell had established the operation in the backwoods, but Smith was ignorant of his predecessor.

His patient was a woman thirty-three years of age, who had noticed an abdominal tumor about seven years. It was said to have burst and disappeared two or three times, from which we should argue the formation of adhesions. At the time of the operation it was described as a large tumor in the right side of the abdomen. Smith states that the patient's health was not greatly impaired, but

that "she was sensibly affected by the disease" and readily consented to the removal of the tumor.

His description of the operation suggests far more the technique of to-day than do many that have appeared during the intervening years:

"An assistant rolled up the tumor to the middle of the abdomen and held it there. I then commenced an incision and extended it down three inches. I carried it down to the peritoneum and then stopped till the blood ceased to flow, which it soon did. I then divided the peritoneum. The tumor now exposed to view was punctured, a cannula introduced, and seven pints of fluid discharged. Previous to tapping the tumor, by inserting my finger by the side of it, I ascertained that it adhered to some extent to the parietes. After evacuating the fluid I drew out the sac, which brought out with it, and adhering to it, a considerable portion of the omentum. This was separated from the sac with the knife, and two arteries, which we feared might bleed, were tied with leather ligatures and the omentum returned. By continuing to pull out the sac the ovarian ligament was brought out; this was cut off, two small arteries secured with leather ligatures, and the ligament was then returned. . . . The incision was closed with adhesive plaster and a bandage was applied. No unfavorable symptoms occurred after the operation; in three weeks the patient was able to sit up and walk, and has since perfectly recovered. . . .

"The mode of operating, practised in the above case, is the same that I have described to my pupils in several of my last courses of lectures on surgery. The event has justified my previous opinions."

Certainly the man who could do and write that eighty-five years ago was a very vital person.

At the present day it is not easy for us to estimate the extent of Smith's influence throughout New England,

and especially in New Hampshire; but it was certainly very great. Francis Bacon, writing in 1887 of the profession in New Haven, says of him that there can be no hesitation in reckoning Smith the most eminent medical man whom the medical profession in New Haven has ever counted among its members. There is no doubt of that, and we might safely add to New Haven, Maine, New Hampshire, and Vermont. But it was in New Hampshire especially, that his influence was felt. Connecticut and Massachusetts have drawn their inspiration mostly from the New York and Harvard teachers, but in Northern New England Smith has had few rivals. However, some very able men have been developed among his successors, of whom Dixi Crosby, the first of a noteworthy family of New Hampshire physicians, deserves to be remembered; so, too, does Jonathan Knight, of New Haven, for many years Professor of Anatomy and Physiology there, and the ablest and most successful surgeon in Connecticut for more than thirty years, until his death during the Civil War days.

But it would be going too far afield to mention by name, even, all the able and successful men who flourished in those parts of New England during many of the years of the last century. In some fashion their works do follow them, and they themselves were always ready to testify to the inspiration gathered from their ancient preceptor and sometime comrade, Nathan Smith.

The two most conspicuous names in Boston medicine of the last century are those of Jackson and Bigelow.[6] The Jacksons, father and son,—the son cut off in his early youth and the subject of a memorial by his distinguished father,—fill a unique place in our annals.

The Bigelows—father and son—both lived long and

[6] The following sketch was originally published by the author in the Johns Hopkins Hospital Bulletin, January, 1902, and is here reproduced through the courtesy of the editor of the Bulletin.

active professional lives, their working years covering in all more than eight decades. To the younger generation the distinguished son, surgeon and teacher, Henry J. Bigelow, is the better known; but I doubt whether in future annals his fame will eclipse that of his father.

What is it that that father did? On what does his fame rest? Why do our seniors still name him with respect and almost with reverence? Men who knew him tell this of him. He was a wonderful old man; his mind was alert to the very end; he was full of wit, humor, and satire; he was wise, acute, profound; and he was one of the ablest practitioners we ever had. But there was more than this in it all. What the man did impressed enormously the community in which he lived, the source of the impression being often almost unrealized.

Jacob Bigelow was born on February 27, 1787, and died on January 10, 1879, nearly ninety-two years old. His life embraced all the greatest events of our country's history, from the adoption of the Federal Constitution, through the Reconstruction days. And no man more than he grasped the meaning of all that wonderful era. Born at a time of political expansion, he came to know personally all the foremost figures of the age among us. John Adams complimented him, Thomas Jefferson corresponded with him, Daniel Webster was a fellow-townsman, Lincoln and Grant were familiar to his riper years; and though with politics he never had active concern, he was always an appreciative student of national development, and in his place was an aggressive and liberal promoter of reforms,—municipal, social, educational, and scientific.

He was of New England ancestry. His great-great-great-grandfather came from England about 1640 and settled in Watertown, Massachusetts. In that vicinity

the family always lived. His father—Jacob also—was a Congregational minister in Sudbury.

The younger Bigelow's childhood was passed in the country at farm work and with scant schooling. Painfully, his father was enabled to send him to Harvard College, where he was graduated in 1806. During those early years he was not slow in the pursuit of useful knowledge. Nature always charmed him, and in the study of her mysteries he was an eager scholar. Flowers, the succession of crops, the building of the trees, the changes of the seasons, meant always more to him than to the average simple country lad.

In college he was not unknown. In his brief autobiographical notes, which end with his middle life, he tells us that he was a member of a "Theological Society, which was very good; a Porcellian Club, which was very bad; a Phi Beta Kappa Society, intended to be composed of the best scholars; and a Navy Club, which was above suspicion as containing the worst." He was the poet of his Commencement day.

Like Astley Cooper, Bigelow had no special "call." Beyond the fact that he had an inborn love of nature, there was nothing to lead him to scientific pursuits. The choice between law, theology, and medicine exercised him not a little, and he tells us that his opinions were at last confirmed by the anatomical lectures of John Warren.

Were it not for wandering too far, it would be interesting to relate Bigelow's impressions of that distinguished man, for he used often to speak in glowing language of the great fluency and charm with which Warren lectured.

On the choice of a profession, Bigelow had many interesting things to say, and in his later years contrasted eloquently the great range of pursuits which became open to aspiring youth, as compared with the narrow things of his boyhood. "Few young men," he says, "would then have cast their fortunes on the uncertain chance of

finding occupation and livelihood in the almost unexplored paths since successfully pursued by multitudes of educated aspirants—in the capacities of engineers, mechanical and chemical manufacturers, artists, authors, editors, lecturers, and teachers of the higher class. Is it not possible that future learned professions will spring up for the future wants, luxuries, and perversities of mankind? Why should not cookery, which caters to the gratification of one sense, take its place as a fine art by the side of music and painting; and why should not a refined and cultivated anæsthesia be so varied in its applications and degrees as to exempt mankind from their griefs and grievances by an artistic application?"

The Harvard School and a residence in Boston were beyond the reach of young Bigelow on his leaving college, so he spent one year in Worcester as tutor and student before matriculating in the Medical School of his *alma mater*.

In 1808 Bigelow came to Boston to attend the lectures of the medical professors, entered as a pupil the office of John Gorham, and eked out his scanty income by teaching in the Boston Latin School. He became a student of science while continuing to broaden his familiarity with the classics.

He passed but one year in Boston; then went to Philadelphia, in 1809, for the lectures of Rush, Wistar, Physick, Barton, and Coxe, and to obtain the doctor's degree. He was then twenty-three years old.

From the very outset, Bigelow showed characteristics familiar enough in American youths,—ambition, courage, confidence in himself, adaptability to his surroundings, versatility, a keen sense of perspective, humor in its best sense, and an inexhaustible capacity for work. When, during his medical course, funds from home failed him, he took to teaching. To bring himself early before the professional public, he took to writing, and secured the

handsome Boylston Prizes in four successive years; indeed, it began to be said that the Boylston Prize was instituted for Bigelow's benefit. Coming to Boston penniless, unknown, without friends or connections, he cultivated from the outset the best among his contemporaries and was an early member of their social, professional, and literary gatherings. Among those men, friends of his youth, were Alexander Everett, a brother of Edward, George Ticknor, H. D. Sedgwick, Nathan Hale, Edward T. Channing, and William P. Mason.

So well known had he become and so promising seemed his career that within two years the elder James Jackson chose him as his associate in practice. Jackson had recently been appointed Professor of Theory and Practice at Harvard.

Early there became evident in Bigelow a facility in the handicrafts which was equalled only by his brilliancy in intellectual pursuits. That he gave himself largely to the subjects of therapeutics and internal medicine has always been an interesting fact. He would doubtless have succeeded as a surgeon, as did his distinguished son. He was a born artist, artificer, craftsman, mechanician, and inventor, and there has probably never been a man better equipped by natural endowment for success in all branches of the healing art. So far as appears, he never had any regular instruction in mechanics, but qualified for these pursuits by persistent personal inquiry and the exercise of his natural genius.

When occasion came for illustrating his "American Medical Botany" with colored engravings, and before modern methods of lithographing were invented, he himself devised a means of illustration which proved both practical and beautiful. When he wished for drawings and models for his lectures as Rumford professor, he knew how to make them. When he was called upon to lay out the plan of Mount Auburn Cemetery, he proved

himself an ingenious and practical landscape gardener. He was wont to appear in every workshop, garret, and cellar in Boston where artisans or mechanics would grant him entrance and answer his questions. He knew what was done and how done by smith, glass-blower, clock-maker, type-caster, printer, moulder, and engraver.

At the age of twenty-five, when less than two years in practice, his extra-professional activities were punctuated by an election to the Anthology Club, a famous literary body which was founded in 1805 with fourteen members, and, after a flourishing existence of many years, developed into that most unique and popular of all private libraries, the Boston Athenæum.

Of course he joined the Massachusetts Medical Society, and was early honored with an election to the Massachusetts Historical Society and the American Academy of Arts and Sciences.

In 1812, too, his interest in the study of botany and his appreciation of its possibilities led him to give a course of popular lectures on botany in Boston, under the patronage of John Lowell.

Bigelow often said what has been said by many other distinguished and successful men, that a professional man should have a hobby. I suppose his own hobby was botany; though, indeed, he rode many little hobbies besides. At any rate, to botany he first betook himself in no amateurish fashion, and studied and lectured and wrote books. "Florula Bostoniensis" was one of them,—a volume well known to our grandfathers; a charming, comprehensible English book, bringing nature and fields and forests and flowers nearer to simple minds.

Now, these studies of young Bigelow brought him many friends near home and distinguished correspondents from abroad. Such were Henry Muhlenburg, of Pennsylvania; the Abbé Correa de Serra, at that time Portuguese minister at Washington, perhaps the best-

cultivated man in America,—kindly, learned, much acquainted, widely known in science; and there were also such correspondents as Sir J. E. Smith, Desfontaines, Jussieu, and de Candolle.

So Bigelow began to be known among the wise men of Europe, before he was thirty, and, being no pedant, was liked among common folk at home. His practice among them spread, and Harvard College appreciated him and made him a professor.

In 1815 he was appointed lecturer on Materia Medica and Botany; and in 1817, when he was thirty, they changed his title to professor, and made him the colleague of James Jackson, J. C. Warren, John Gorham, and Walter Channing. He held the chair for forty years.

Many writers have observed that a man's most interesting years are his early, formative ones, and novelists have made use of this fact. But it was not altogether so with Jacob Bigelow. While poor and young, strenuous and ingenuous, he was an interesting figure; but I hope to show that he remained an interesting figure, rich and old, still strenuous and wise.

There is little time or space to tell much of those early years. He was a poet, for he read a Phi Beta Kappa poem at Commencement on the theme "Professional Life," in words somewhat original, in style Drydenesque. And while he was doing these intellectual things, his hands were not idle nor his tongue backward in telling of his tasks. Of his many-sidedness perhaps I have said enough, and it will illustrate the "why" of his being appointed Rumford professor and lecturer on the Application of Science to the Useful Arts at Harvard.

He was the first Rumford professor, and again, were it not for the limited space, it would be pleasant to say something of that distinguished Count Rumford, and to tell Tyndall's delightful story of his romantic and useful life. But Rumford was dead, and had left some money

to Harvard College for the purpose aforesaid, and Bigelow was appointed to carry out the purpose,—a man, I believe, after Rumford's own heart.

This novel bequest of Rumford, which established a professorship with an annual income of one thousand dollars, marks an interesting departure in American university education. It seems to have been accepted by the College with a certain amount of scepticism at first; but the unusual talents and ability of the first professor shed a light upon utilitarian topics which was entirely unsuspected by the dons of that day.

On December 11, 1816, Bigelow devoted his opening lecture to the Life and Works of Count Rumford. The address was printed, and its force, sanity, and eloquence met with praise from men of all sorts.

Probably this appointment, and the meaning of it all, was for Bigelow the most significant event of his life. Doubtless, the developing science of the last century would have had in him an enthusiastic student under any circumstances; but it is fair to suppose and pleasant to believe that Rumford, the distinguished American, the idol of foreign courts, the founder of scientific bodies, stimulated and left behind him in his native State a young disciple who needed only that brilliant and successful example to lead him wisely towards the pursuit of truth.

Of those first lectures of Bigelow, the youthful professor, one can give but slight account. The showing of apparatus and the description of technics lend themselves feebly to the printed page. But we know that the lectures were successful and stimulated a growing demand for the popular demonstration of the elements of science. To Bigelow himself their value was doubtless greatest, as has been said. He was the first of a line of distinguished men to hold the chair, and is represented in it to-day by Wolcott Gibbs, professor emeritus, and John Trowbridge, the actual incumbent.

Then there was that other pursuit,—botany,—which, with medicine and technology, occupied his life. The little book on Boston flora, published in 1814, was popular at once. The subject was so plainly and charmingly handled that the volume had a large circulation among the laity from its first publication. Ten years later, in 1824, a second and very much enlarged edition appeared.

This was only the beginning of his botanical givings forth. The work for which he was early distinguished, which brought him into closest contact with the savants of Europe and gave him honor in his own country, was the elaborate series of volumes published under the title "American Medical Botany." This treatise purports to cover the ground indicated by its title in a popular as well as exhaustive manner, and a special feature in it is the elaborate system of plates designed and largely executed by Bigelow himself.

These rare volumes impress one strongly with the style and method of their contents; the distinctness, finish, and beauty of their illustrations; and the excellence of their appearance as regards paper and typography, which would make them creditable productions at the present day. Their popularity with the unprofessional reader was enhanced by the author's avoidance of technical terms.

Bigelow's eminence as a botanist was recognized also by his being appointed an editor of the first edition of the "United States Pharmacopœia," in 1820, at the age of thirty-three, in association with Spaulding, of New York; Hewson, of Philadelphia; Ives, of New Haven; and De Butts, of Baltimore. In this publication Bigelow's scheme of simplifying nomenclature was followed, thus distinguishing the American Pharmacopœia from that of Great Britain.

In 1817, when thirty years old, Bigelow married Mary Scollay, of Boston. They had five children, one of whom was Henry Jacob, famous among American surgeons.

So in the year 1820 we may regard Jacob Bigelow as well launched in his calling. Though still young, a recognized authority on botany, a distinguished lecturer on applied science, a successful teacher and practitioner of medicine, and already approaching the acme of his life work as a physician, let us believe, though the exact extent of his activities is not entirely apparent.

To one studying the profesional conditions in Boston at that day the burden of incessant practice would appear to have been less onerous than it has since become. Boston was fortunate in a goodly number of eminent doctors, and though fees were small, as we reckon fees, it would appear that all were comfortably supported in that frugal generation. Indeed, as regards many of those well-known men, one is not impressed with the sense of their incessant and overburdened professional activities, great incomes, and increasing demand for their services, as was the case with their English contemporaries. They seem to have had time for a diversity of interests, and it is for this reason, perhaps, that they have left behind them the reputation for wide philanthropy, good literary and scientific attainments, and respectable scholarship.

In the present day all Boston physicians are not conspicuously public-spirited; tradition says that in this they have degenerated. However that may be, and whatever the cause, in Jacob Bigelow we have a conspicuous example of the reverse. Through life he was eager and forward in many public movements; in some of them an originator and leader. As with most men, the story of his life gravitates naturally into three chapters,—development, maturity, and age. In all except the last he was precocious, and for this reason his activities covered a multitude of years. We have traced him through the first chapter. Let the second chapter begin at the age of thirty-eight, and be ushered in with the inception of his

first conspicuous public service, the founding of Mount Auburn Cemetery.

Up to this time (1825) the dead of our cities had been buried in the city church-yards and vaults, and the problem of their disposal was becoming an urgent and a distressing one. With the increase of population the ground was being encroached upon at the same time that burials were becoming more frequent. Many of the older church-yards had long been full. Interments were made in graves already occupied, and ancient bones were being disinterred and removed. Shocking as all this was to the sensibility of the community, the danger to the public health was becoming more serious. All this had long been a matter of grave concern to Bigelow, and in this year he called together at his house a small company of prominent men to discuss the situation and its remedy. He proposed to them a plan which met with their cordial approval, though when it was made public it was received with a storm of opposition and ridicule.

Bigelow's proposition was the founding of an extra-urban forest cemetery. In a delightful and convincing series of papers he pointed out the reasonableness of this plan and the offence of the existing methods. The arguments he used are familiar enough to-day. Little was needed to show the disadvantage of past conditions and the advantage of returning bodies to a virgin soil where rapid decomposition in a forest garden might go on unchecked. This was told graphically and strikingly.

For seven years the debate went on, until, in 1832, in spite of constant and powerful dissent, the cemetery at Mount Auburn was dedicated for public use. The place is situated in a piece of woods about a mile from Harvard College, on the banks of the Charles, and had long been a favorite resort for lovers of nature. The students had named it "Sweet Auburn."

In every sense Bigelow was the founder and promoter

of this modern cemetery. He laid out the grounds; he thinned the trees; he surveyed the roads, paths, and hedges; he supervised its ornamentation; he designed its classic gateway and approach. For it, indeed, he became the first of our landscape architects.

The success of the new plan was instantaneous and pronounced. From the very opening of the cemetery it appealed to the sentiments as well as to the reason of our people, and numberless imitations were promptly projected in all parts of the country. As long as he lived, Bigelow continued an active supporter and director of this work.

In 1872, forty years later, he planned and presented to the trustees the famous Mount Auburn Sphinx,—a memorial to the Union soldiers of our Civil War. It bears this inscription:

"America conservata
Africa liberata
Populo magno assurgente
Heroum sanguine fuso."

The year 1832 was marked by the outbreak of a great cholera epidemic in this country, and the disease raged fearfully in many of the seaboard towns. In New York three thousand died, and the city was almost deserted by the terrified inhabitants. Those must have been very stirring days, if we can believe even the colorless recital of Bigelow's biographer.

Early in the epidemic, and before it reached Boston, the authorities there determined on vigorous measures for the protection of that city. A strict quarantine was enforced, and a number of eminent physicians were invited to investigate the New York conditions. It is stated that some of those who were asked to take part in this work found reasons for declining; but Bigelow, Ware, and Flint willingly offered their services and went as commissioners to the stricken city.

The conditions they found there were said to beggar description: terror everywhere; deserted streets, crowded hospitals, frightened attendants, and devoted physicians. It was, indeed, such a plague as was known to the Italy of the Middle Ages. The Boston physicians saw and reported. They visited the hospitals, they conferred with the authorities, they studied the cases, and they found a state of affairs far worse than rumor had pictured.

Their mission ended, they returned home, through some difficulties, we are told, for local authorities refused them passport. They were actually turned away from the city of Providence and forced by a circuitous route to make their journey to Boston. So grievous is their report said to have been that the mayor of Boston withheld it from publication for fear of alarming the community; but their recommendations were of the greatest value, and through their efforts the disease was largely averted from the town; the mortality figures showing that, while New York lost three thousand by death and many other seaboard cities between one and two thousand, the deaths in Boston numbered one hundred in all.

It seems as though, with the approach of middle age, Bigelow had already accomplished a good life work. Indeed, he himself seems so to have thought. In 1833 he was forty-six years old, and felt himself to have earned a rest from his constant labors. In this year, then, he went to Europe for the first time,—a mature man, famous in his own country and already well known to foreign scholars. One of his companions on this voyage was young Oliver Wendell Holmes, his pupil, a recent graduate in medicine, going to Paris to complete his education.

With this voyage ends the story told in Bigelow's modest autobiography.

Beginning with this second era,—his middle age,—his activities continued in many new directions. He was Visiting Physician to the Massachusetts General Hospital,

Professor of Materia Medica at Harvard, conducted an enormous consulting practice, was a very frequent contributor to the press on matters of public interest, and was chairman or trustee of many important public and private organizations. But, above all, he became conspicuous for the great reforms which he instituted in the practice of medicine.

Mount Auburn will always remain a monument to Bigelow, the citizen. But the physician's work as a pioneer in science should, and I believe will, give him a more permanent place in our annals.

At the outset of his professional life he was imbued with the prejudices and traditions of the so-called heroic method. He had been taught that the department of therapeutics was the most important in medical practice. This was the belief of all the world at that time, and, with few exceptions, physicians regarded the study of disease, the careful review of etiology, the course and nature of symptoms, the appearance of morbid processes, and the proper estimate of prognosis as very secondary matters.

To be sure, there were in France and England a few men who were beginning to appreciate the value of observation, and about this time the statistical method rather than the study of individual cases had its inception; but such work, and especially that of Louis in Paris, was as yet little known. In our own country, medicine had advanced but little beyond the teaching of the eighteenth century, and, with the exception of Jenner's vaccine, we were still in darkness.

Very early in his career, and influenced by his interest in and pursuit of science in broader fields, Bigelow was led to a habit of observation and just conclusion. He came to see that disease is by no means susceptible of ready curtailment; that great numbers of processes run a definite course, with spontaneous recovery; that other processes subside and recur periodically; that others still

persist to the end uninfluenced by therapeutic measures; and that there is underlying it all a *vis medicatrix naturæ* too little reckoned with.

In those early days, too, when ingenious men were advancing theories founded on speculation and insufficient observation, and when text-books were loaded with *ex cathedra dicta,* dogmatic teachers were looked up to by the public and by medical students as almost divine healers. The teaching of Hahnemann and the wide enthusiasm of his followers in homœopathy had led great numbers of persons to regard the ancient methods as humbug, and many educated men were being led away into these new practices.

Bigelow saw clearly and pointed out the significance and meaning of it all. His voice was heard in the land, and for many years, in season and out of season, he ceased not his demonstrations of the self-limited character of disease. All of this is now so trite and so familiar, even to the intelligent among the laity, that it seems a little thing; but the daring of it and the success of the pioneer in those days were very heroic and real.

In 1835, in an address on "Self-limited Diseases" before the Massachusetts Medical Society, Bigelow struck the true note, and the effect was instantaneous and immense. In popular opinion, homœopathy has the credit of inciting and furthering that radical change in the methods of medical practice which has prevailed among us for two generations. Quite otherwise is the truth. Writing in 1880, Oliver Wendell Holmes says, in reference to this address of Bigelow, "This remarkable essay has probably had more influence on medical practice in America than any similar brief treatise, we might say than any work ever published in this country. Its suggestions were scattered abroad at the exact fertilizing moment when public opinion was matured enough for their reception."

In 1852 Bigelow delivered before the students of the Massachusetts Medical College in Boston a striking address on medical education, the key-note of which was similar to that of his famous essay on "Self-limited Diseases;" at the same time he urged upon his students the great importance of a thorough scientific training. This was twenty years before that beginning of reform in medical education in America which was initiated by Harvard some thirty years ago. The trend of Bigelow's remarks was in the line of those better things with which we are now familiar.

He naturally deprecated the vicious practice of that day which allowed students to qualify for the degree after two short courses of lectures and a certain amount of practice in the offices of physicians. But he went further than merely urging that three and four years' course of medical study with which our generation is familiar; he anticipated and advocated that development of special instruction to which to-day we are turning.

He recognized the usefulness and importance of didactic lectures; but original research on the part of students, and personal investigations in laboratories, in small classes, under the supervision of competent instructors, he advocated as most important of all. His views on this subject coincide with those of the leading scientists of modern times, and it is interesting to recall that Huxley, forty years ago, insisted upon the personal as distinguished from the second-hand methods of study.

Bigelow then went on in his characteristic style to define the exact sciences and the speculative sciences; preeminent among the latter he placed practical medicine,— "a science older than civilization, cultivated and honored in all ages, powerful for good or for evil, progressive in its character but still unsettled in its principles, remunerative in fame and fortune to its successful cultivators, and rich in the fruits of a good conscience to its honest vo-

taries. Encumbered as it is with difficulty, fallacy, and doubt, medicine yet constitutes one of the learned professions. It is largely represented in every city, village, and hamlet. Its imperfections are lost sight of in the overwhelming importance of its objects. The living look to it for succor; the dying call on it for rescue."

He proceeded more elaborately to explain the difficulties of therapeutics, using the old-time comparison between the physician and the experienced pilot, and showing that the rocks and narrows in the pilot's course must be known to him, this knowledge being of far more importance for the safety of his bark than his ability to calm the winds and the waves. And so he comes to the inevitable conclusion—for us now the last word—" that he is a great physician who above other men understands diagnosis."

This charming essay, intended for young beginners,—lucid, free from technicalities,—can be read by any layman, and is indeed a very missionary tract. These two essays and a number of others on medical and general topics—homœopathy, quackery, burial of the dead, pneumothorax, tea and coffee, the history and use of tobacco, etc.—are bound together in a little volume, entitled " Nature in Disease, and Other Writings," published in 1854.

In the last generation this book was to be found on the shelves of every well-equipped library in New England. Simple and unpretentious, its influence inside and outside the profession was immense, and I believe that to it more than to the writings of any other one man we owe the appreciation and popularity of the medical profession in this country.

In such studies and pursuits, then, we must believe that Bigelow immersed himself for the many years of his long middle age.

Of his private life there is no space to tell, nor of his connection with the stirring events preceding and accom-

panying the Civil War. Side glimpses of him we have in the records of medical societies of those days; notice of his constant attendance at such meetings; and quotations from his strong, wise, and earnest sayings. In those years his son, Henry J. Bigelow, was coming rapidly to the front as teacher and practitioner of surgery; and during the Civil War both of these men, father and son, were already past the military age, so that their public labors in those trying times were little associated with the activities of camp and battle. The high patriotism of the elder man we know, for is it not evidenced by that monument which he himself designed?

With the war began the third era in Bigelow's life,—his old age. Still useful, still forceful, his endeavor was constant for the intellectual uplifting of his fellows. Throughout his long career, his utilitarian studies, his contact with eminent scientific men of all countries, and his abundant experience as a practitioner of medicine confirmed him in the belief that the old-time pursuit of the classics, the traditional "liberal education," was for success and usefulness in life by no means salient. Indeed, he had convinced himself that in our days a liberal education should mean far more than an intimacy with the ancient classics; and this, too, in spite of his own high training and accomplishments in that branch of learning.

With such convictions, Bigelow took a profound interest in the Massachusetts Institute of Technology, which was incorporated in the early days of the Civil War; and at the dedication of its new hall, on November 16, 1865, he delivered a striking address on the "Limits of Education." His object was to break, or rather to extend, those limits in a way to make education "conduce most to the progress, the efficiency, the virtue, and the welfare of men." This address is so striking, so in advance of the times, so complete, even for us to-day, and so little has

been added to it by more recent thinkers, that it is difficult to pass it by without quotation.

The early training of a pupil must be as thorough as possible; "but after this is completed, a special or departmental course of studies should be selected,—such as appears most likely to conduct him to his appropriate sphere of usefulness. Collateral studies of different kinds may always be allowed; but they should be subordinate and subsidiary and need not interfere with the great objects of his especial education."

"A common college education now culminates in the student's becoming what is called a master of arts; but this, in the majority of cases, means simply a master of nothing."

He assigns much of the modern conditions among us to English conservatism, for the conservation of a privileged order. "It is the duty of educational institutions to adapt themselves to the wants of the place and time in which they exist."

"Life is no less short now that it was for the Roman poet, but art is vastly longer."

Such earnest thoughts as these were much in Bigelow's mind, and he soon carried them to the American Academy of Arts and Sciences, over which he had long presided.

In his address before the Academy the next year he developed the same theme; realizing the immense demand of this expanding country for the services of expert, educated men "in its cities and mining regions and factories and workshops; for skilled labor, for chemists, engineers, architects, constructors, overseers."

A great antagonism was aroused, but the majority of critics were friendly.

Out of this turmoil, and especially out of a challenge on the arena of the Academy, came a further reply from Bigelow. His biographer describes the scene from memory: a social meeting of the Academy at Bigelow's house

on the evening of November 20, 1866; the title, "On Classical and Utilitarian Studies."

This paper was the longest, the most elaborate, and the most learned of his written productions. Of it his biographer says, "The sparkle and brilliancy of its style, the exuberance of its playful humor, the keenness of its occasional satire, the compass and wealth of its scholarship, the cogency of its accumulative argument and demonstrative affirmation may claim for that essay a very high distinction among the masses of our recent like productions."

The pith of his argument is this,—and it is the argument underlying the whole trend of modern democratic thought: that education is the right of the many and not the privilege of the few; that that conservatism which restricts education to the classics and what may be called æsthetic culture is but the highest form of class selfishness; that such practices are not only in themselves vicious, but tend to the lowering of the whole educational fabric; that the underlying thought in education is the teaching how to *think* and the meaning of *study,* and this much at least is due to the masses; that it is those things which tend most to the useful arts, to the alleviation of human suffering, to the broadening of the popular horizon, for which we must all strive. All this, trite enough in these days, was not an old thought thirty-seven years ago, even to the distinguished scholars who formed his audience; and the teachings of Froebel had not yet been accepted among us.

Then glancing rapidly back, Bigelow said, "The wisdom of the ancients was selfish in its privileges, inwrought with error, superstition, and vice; confined to a very few; inoperative and useless to the masses; it did not and could not advance any vast public and improving interests, nor conserve social prosperity and order."

Speaking of the Renaissance, he remarks, in a para-

graph full of interest, that the popular idea of this brilliant epoch as a revival of classical learning merely is untrue. That the study of the classics was but one evidence of the reviving and wide-spread interest in intellectual pursuits. Literature, the arts, science, all shared equally in the new advance; and of them all, science soon began to cut for itself a broad, new, and straight path.

How large an influence these discourses of Bigelow had upon modern thought and purpose it is difficult to say. Doubtless he was one of many; but to us the interesting thing is this: that such teaching, vigorous, forceful, was but the continuation of the lessons of a long life; for eighty years he had been a modern. Grasping the meaning of science in his youth, he had held it steadily before him. And now we see him nearing the end of his career, preaching and teaching among the most radical thinkers; old as he was, leading the advance in the great educational reform of our time. Never senile, never looking backward, but always confident of better things to come.

These educational essays caused wide-spread discussion, both at home and abroad, when they came to be distributed. The historian, Lecky, wrote from Italy a strong and interesting letter of dissent; but Lyell, Huxley, Spencer, and other liberal Englishmen were vigorous in their commendations. The essays, under the title "Modern Inquiries," were published at the time of a forward educational movement in England.

Lyell writes to Bigelow, "Our universities and all the principal schools are, as you know, in the hands of the clergy; hence we shall have more difficulty than you in introducing the elements of science and natural history. The clergy—Romanist, Anglican, and Dissenting—have hitherto proved too strong for us. Reformers and American and Continental rivalry must be brought to bear before we shall succeed. Your book will be most useful at this moment in this country."

"By their fruits ye shall know them" is sometimes true. It is true in Bigelow's case. It is fair to say that the Massachusetts Institute of Technology, with its splendid curriculum, its strong staff, its host of highly trained and successful graduates, stands to-day a monument, in part at least, to the energies of this distinguished man.

That work for educational reform was Jacob Bigelow's last great work. He did many other things in his declining years,—pleasant things, to be remembered by his friends. He became the Old Man Oracle,—a Nestor most distinguished, most approachable, of whom one hears to-day nothing but good. It was a busy old age, given for a time, more than is the wont with Nestors, to travel and intercourse with men. When eighty-three he went to California on a pleasure-trip, with wife and friends; and of the wonders there he explored many.

In old age, too, he amused himself much with playful writings, extra-professional, the best known of which was *Χηνωδια* ("Chenodia")—a classical Mother Goose, the ditties of that good dame rendered into Greek and Latin.

A pretty collection is *Αἰόλος Ποιεσις* ("Various Poetry"), a volume of fugitive, humorous poems, attached to which are the names of well-known writers, his friends: Bryant, Longfellow, Holmes, Emerson, Lowell, and others.

In such and other pleasantries he passed his declining days—not in harness, a garb scarce suited to ninety-two. Blind at the last, for nearly five years. Bedridden, but with mind undimmed. Much sought out, even so. Unforgotten to the very end, though long inactive among us. The *story* fades away gently—the *history* remains.

CHAPTER XII.

THE NINETEENTH CENTURY. CHAPMAN, FRANCIS, GIBSON, JACKSON.

PHILADELPHIA and, later, New York being the centres of medical interest as well as of population for very many years of our history, drew to themselves great numbers of able men from other parts of the country. For this reason probably, with a few exceptions, such as Long, of Georgia, and McDowell, Dudley, and Drake, of Kentucky and Ohio, we hear little of distinguished Southern or Western doctors in the first half of the nineteenth century. The large Eastern cities appropriated the most eminent physicians from the whole country.

There is no better example of this than Nathaniel Chapman, of Virginia and Philadelphia. Wherever he had lived he would undoubtedly have been a national figure, but he chose to live in Philadelphia. He would have been a national figure because he was roused by Sydney Smith's slur at the insignificance of American achievement, and he determined that, if he could help it, American medical literature should be rescued from the sink in which the captious Scotchman had placed it.

"In the four quarters of the globe, who reads an American book? What does the world yet owe to an American physician or surgeon?" was what Smith had said. Chapman took this motto and made it his own for *The Philadelphia Journal of the Medical and Physical Sciences,*—that venerable periodical which is known today as *The American Journal of the Medical Sciences.*

Like many other American physicians of whom we read, Nathaniel Chapman was descended from an ancient and honorable English family. The Chapmans were long

settled in Virginia, on the Pamunkey River. He was born in Virginia on his father's estate in Fairfax County, on the Potomac, near Alexandria. The date was May 28, 1780, and it is an interesting fact that his lifelong friend and professional associate, Joseph Hartshorne, was born in Alexandria the year previous.

At the Alexandria Academy, founded by Washington, the two lads studied for six years. They seem to have been good boys and studious, for we hear nothing but pleasant things of them there, such as warm the hearts of parents and guardians. Chapman was made a good Latinist, at any rate, and came to love literature with a warmth and discrimination which remained with him through life.

When seventeen years old he began the study of medicine. It was in 1797, one of the famous yellow fever years made memorable by the writings of Rush, that Chapman came to Philadelphia and entered the Pennsylvania School.

Besides an excellent education in the classics and two years desultory reading of medical books, Chapman had few advantages to assist him in his new life. He was a stranger, poor, without acquaintance or introduction; but from the first, even as a lad, he found himself surrounded by friends. His delightful personality was the best part of his youthful capital. He was a good fellow; pleasant to gaze upon, unaffected, sincere, clear-eyed, warm-hearted, and brilliant. He made powerful friends by his graciousness and held them by his sterling abilities. So he became prominent while young, and his subsequent conduct justified the men who had helped him.

That erratic physician, Charles Caldwell, had come from North Carolina to Philadelphia about five years before Chapman's début, and it was with him that the latter soon found himself in active rivalry, when the two young men were well launched. We read that, when a

student on the benches of Rush's lecture-room, Caldwell proclaimed his intention never to be satisfied until he was seated in the lecturer's chair or one equal to it. But he was fated to miss his mark some few years later, and so keen and bitter was his disappointment that he threw up his practice and chances, abandoned Philadelphia, and betook himself to that Western School where he afterwards hectored and opposed his more famous colleague, Daniel Drake.

Be it observed of this active-minded Caldwell, in passing, that he was a thorn in the flesh of most folk with whom he came in contact. Rush himself did not escape his censures, as Caldwell's Autobiography shows,—a somewhat absurd production,—and the latter never forgave Chapman for winning a prize which he had marked for his own. He wrote of this episode, "Chapman had the candor to acknowledge that he was more indebted to the friendships of the Trustees than to any other cause," and that "the Chair was bestowed on my competitor from the good will and favor of the Board of Trustees, notwithstanding the almost universal admission that my own qualifications for it were not a little superior." Here surely was an American without a sense of humor. So much for Caldwell, of whom nothing further need be said, save that he was forever appearing in the periodical literature of those days. Always bumptious and loud, though with many lucid moments, we cannot escape him if we ask about medical times of a century ago.

Chapman was the antipodes of Caldwell, so the one was taken and the other left Philadelphia; but before that Chapman had spent many fruitful years in the city. On his entering the University School he had become a private pupil of Rush, who ever afterwards loved him well.

The popular young fellow was graduated in the spring

of 1800, and presented a thesis on hydrophobia in which he defended certain favorite propositions of Rush on the subject. He had previously written an essay on the sympathetic connections of the stomach with the rest of the body. This paper, which was read later before the Philadelphia Medical Society, contained the germs of the writer's doctrines regarding the pathology of fever as well as of the *modus operandi* of medicines,—matters which need no further mention here.

Then he went abroad for three years and employed himself well in the prevailing fashion. He seems to have been a good deal of a social lion in Edinburgh, where he was taken up by Lord Buchan, Dugald Stewart, and Brougham.

The story is told that Buchan, an eccentric but kindly enthusiast and a friend of America, gave him a public breakfast just before he sailed for home, and that he invited to meet him most of the wits and distinguished persons of the town. It was on Washington's birthday. It seems that Buchan had had a warm friendship for that great man, to whom, some years before, he had given a box made from the wood of Wallace's oak, with the request that at his death he should bequeath it to the man in his own country who seemed most worthy of it. Naturally, Washington had avoided the invidious situation, and by will returned the box to Buchan. So the latter now bestowed it upon Chapman, with the intention that eventually it should go to the Cabinet of Washington College, which Washington had promoted.

Altogether, that breakfast was a repast long to be remembered by the young man.

In 1804 Chapman settled in Philadelphia and began to practise medicine. He was then but twenty-four years old, and, if we are to credit his biographer, his success was immediate. As that writer puts it, "for a period of nearly fifty years he commanded whatever he could

attend of practice in the most refined and opulent circles of our city." He was, however, something more than a mere fashionable doctor. His fame does not rest on that and the Edinburgh breakfast, but on his teaching and writing, and in those lines he did most admirable work.

First, in 1804, as a teacher of obstetrics, he was made the assistant of Professor Thomas C. James in the University School. Then, in 1813, on the death of Rush, when the chair of Theory and Practice was left vacant, Barton was transferred to it and Chapman was given Barton's former professorship of Materia Medica. He occupied the place for three years and did some excellent teaching and original writing. His collected lectures, under the title "Elements of Therapeutics and Materia Medica," were called by his admirers the best treatise on those subjects in the English language. Fortunately, the methods which he advocated quickly became antiquated, and Chapman himself suppressed a later edition. Those were the days of heroics in dosing, and early in life Chapman showed no such wisdom as did his distinguished senior, Nathan Smith, regarding the nostrums of the time. But one may still read with interest and pleasure his two prefatory chapters on the "History and Improvements of the Materia Medica."

Chapman was an easy writer, free from pedantry, though of extensive learning, especially in the ancient classics, and his description of the effect of strong mental impressions on the sick is very striking. In one paragraph he remarks, "Disease, as has justly been said, depresses the powers of the understanding as well as the vigor of the corporeal frame, and depraves the judgment as well as the processes of digestion. He who is sick is extremely credulous as to the object of his hopes and fears, so that it too often happens, that whoever assures him of health easily obtains his confidence and he soon becomes the dupe of quacks and ignorant pretenders.

But the vulgar gaze and the emotions which it excites are alike evanescent, and all experience attests that solid reputation and permanent success in medicine, as in other pursuits, are the rewards only of superior merit and unusual acquisitions."

However, it was not as a teacher of obstetrics or therapeutics that Chapman acquired his great reputation, but in the chair of Theory and Practice of Medicine and Clinical Medicine, which he held for more than a third of a century.

He had been the Professor of Therapeutics for only three years, when, in 1816, on the death of his friend Barton, he became his successor. Chapman was thirty-six years old when he was called to lecture on theory and practice. It was the position for which he was specially qualified, and until 1850, when he resigned, he made it one of the strongest chairs in the School. Rush had been chosen for the same place in 1789; so that, except for the short episode of Barton, those two men—Rush and Chapman, master and pupil—held it for more than sixty years.

There are some few men still active among us who remember Chapman's teaching in his old age, and they bear loyal witness to his ability and charm. He was "self-possessed, deliberate, and emphatic," says one who knew him well. "Whenever warmed with his subject, his animation became oratorical. Often the tedium of dry matter would be enlivened by some stroke of wit, a happy pun, an anecdote or quotation. He was furnished with stores of facts and cases drawn from his own large experience and observation, illustrating the principles of the disease or treatment under discussion. His bearing was dignified, his manner was easy, and his gestures were graceful."

It is needless here to rehearse Chapman's theories of the nature of disease. They differed somewhat from

those of Rush, but possessed little originality, mainly following lines familiar in his time. Virchow had not then made himself heard and the manifold theories of the day had not yet given place to fact and knowledge. But Chapman held his high position, through all those years, without an enemy, and resigned only when age and failing health made further service impossible. To our modern thinking, he served too long; but even at the end his retirement was universally regretted.

The personality of the man made a great impression on the Philadelphia of our grandfathers. He was always jovial, gay, and witty. As he grew old the habit of punning increased upon him: that atrocious habit so grievous to twentieth-century ears. His jokes and his sayings were familiar to all the town, and, like the man himself, had only to be mentioned to provoke the cheerful smile.

Now, it is not for his practice, his preaching, or his punning that we must remember Nathaniel Chapman; but because of his conception of medical journalism and the impulse he gave it through many laborious years.

In 1820 Mathew Carey, a prominent publisher of books in Philadelphia, conceived the idea of establishing a medical periodical of broad scope; he secured the willing service of Chapman as editor, and the enterprise was launched under the title *The Philadelphia Journal of the Medical and Physical Sciences*. For four years Chapman alone acted as editor, but in 1824 he took as his associates William P. Dewees and John L. Godman. From the outset this publication was very successful, and its editor to-day, tracing its history through nearly eighty-five years, points to a long series of many of the most important articles that have come from the pens of American medical writers. In 1827 the title of the publication was changed to that by which we now know it,—*The*

American Journal of the Medical Sciences,—and in the same year Isaac Hays was added to the staff.

A few years ago there appeared in that periodical an article entitled "The History of the Development of Medical Science in America as recorded in the American Journal of the Medical Sciences." Though but a fragmentary history, it shows how useful a position a well-conducted medical journal may hold. Perhaps the *Journal* owes more to Hays than to Chapman. Be that as it may, the fact remains that the elder man established it, that he gave it the foundation and policy by which it has lived and flourished, and that eighty years ago he was the leading medical editor of America.

Another important undertaking of Chapman was the Medical Institute of Philadelphia, sometimes known as the Summer School, which he founded in 1817. It was intended not only for undergraduate students, but was of great value as a training school for teachers, and may be considered the first post-graduate school. Its ideal was a high one, and for many years nothing like it was to be found on this side of the Atlantic.

Again, were it not for too great digression, it would be interesting to look more at length at some of the men who made it famous, such as W. P. Horner,[1] the anatomist and histologist; W. P. Dewees,[1] the writer on children's diseases; Samuel Jackson; J. K. Mitchell; John Bell; H. L. Hodge, the distinguished gynæcologist; and W. W. Gerhard, perhaps the most notable of all.[2]

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[1] Horner, 1793–1853; Dewees, 1768–1841.

[2] "W. W. Gerhard (1809–72) was a native of Philadelphia and a graduate of the University of Pennsylvania. After taking his degree he spent two years in Paris, and became thoroughly indoctrinated with the teachings of Louis. On his return to Philadelphia, he was appointed lecturer at the Medical Institute and Assistant Clinical Lecturer to Professor Samuel Jackson. For twenty-five years he was the Senior Physician to the Pennsylvania Hospital. Some of his clinical lectures appeared in the *Medical Examiner,* of

Nathaniel Chapman did a great many other things of which it would be pleasant to tell in season. He was the centre of a great circle of medical friends. Indeed, the story of Chapman and his associates would include a large part of the medical history of America for half a century. He was a busy man, but not so fierce a worker as Rush; he published several books and many essays. He went so far abroad in his early days as to edit a series of five octavo volumes, entitled "Select Speeches, Forensic and Parliamentary," and persons were found to read them.

When the biographers tell of him they quote the rhymes that J. K. Mitchell sent him: nine pleasant stanzas after the manner of Robert Burns. Here are two of them:

"They little ken ye, wha hae known
Y'er science and y'er skill alone,
Though they are mair than ample;
The racy pun, rich repartee,
The gushing joke frae malice free,
Wad na complete the sample.

"But better far, a heart that ne'er
Did o'er a human ill forbear
To heave a feeling sigh,
That readily forgave a foe,
And never dealt a jealous blow,
In keenest rivalry."

The fine old man died on July 1, 1853, in his seventy-fourth year. Three years before that he had laid aside his work, though his friends still sought him, and to this

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which he was one of the editors. His principal work was his 'Treatise on Diagnosis of Diseases of the Chest,' Philadelphia, 1842." (Billings.)

But he will be remembered longest as the first man to distinguish clearly the differences between *typhus* and *typhoid* fevers. Edwin H. Clarke says of him, "The merit of having decided this important question, of having demonstrated the essential difference between typhus and typhoid fever, belongs chiefly, if not wholly, to Dr. Gerhard, and so far redounds to the honor of American medicine."

day he is remembered in Philadelphia as a central figure in that city of great traditions.

There lived in New York a contemporary of Chapman, in certain respects much such another as he,—John W. Francis. He was so prominent a figure there for nearly half a century that one finds it impossible to pass him by with a mere word, though as a man of science he contributed little of permanent value to American medicine. Valentine Mott delivered a eulogy on him before the Academy of Medicine, and if we are to accept what was there spoken, the man's having lived and worked among us shed a lustre on practice and deserve recording.

Francis was humbly born, and was apprenticed to a printer in his youth. In that he used to compare himself to Benjamin Franklin. Indeed, the good man went further, and took a harmless pride in thinking that he resembled the shrewd philosopher in appearance. He made him his hero, and one of his best-known essays is an estimate of the great Philadelphian read before the New York Historical Society. Francis's father was a German immigrant, a grocer by vocation, and the son was born on Warren Street, New York, on November 17, 1789. The lad had slight schooling, though he worked hard at what came to him, and at an early age was bound to George Long, a well-known printer and publisher of the time, to learn his trade. It is said that he had already shown a taste for literature, and adopted the printer's calling with an idea that it would help him in that direction. He was soon undeceived, for he found the composing-stick and the press little stimulating to mental growth; but he was not daunted. To make up for lost time he began the study of Latin in his intervals of work, and made his lunch of apples while he read his grammar under the press. Before long his master became convinced that his apprentice was wasting the time of both in such tasks, and set him free to follow his fan-

cies elsewhere. Those fancies seem always to have led him to literature rather than to science, and just why he took up medicine does not appear clearly, unless it was as a side issue or by-product of the study and making of books. Yet he became a good doctor.

His mother's circumstances appear to have been comfortable at this time, for he was able to fit himself for college at her expense, and was graduated from Columbia in 1809, at the age of twenty. Previous to his graduation, however, like Hosack before him, he began the study of medicine, and was entered as a student in Hosack's office two years before taking his Bachelor's degree.

In spite of his leanings towards literature, Francis was no amateur at his professional work. Eventually he made that the leading thought of his life, and used literature as a hand-maiden to it. One often wonders why this excellent association is not more common. Among the great scientists of Europe in former generations it was frequently seen, and in our own times some great men have demonstrated its value. Most assuredly the articulate goes further than the inarticulate, as Tyndall long ago told us. Huxley would never have become the popular prophet of science without his delightful, pungent style, and Virchow's great intellect would never have won instant and universal acknowledgment had it not clearly and cogently found voice. Few of the truly great men of science have failed to see the value of a lucid and familiar style, although it is the fatuous conviction of the second-rate that obscure, technical pomposity is the essence of scientific diction. Francis appreciated all this as much as did Oliver Wendell Holmes or S. Weir Mitchell; and although he never composed a story or a rhyme, he did acquire a pleasant, spirited fashion of writing which causes his essays of nearly a hundred years ago to be read still without a yawn.

So Francis entered Hosack's office as a student in 1807,

was graduated from the new College of Physicians and Surgeons in 1811, and upon receiving his diploma was immediately taken into partnership by the elder man. Even before his graduation he had become a great favorite with Hosack, who came to lean on him for many things; among others, as a tutor to the students and as his representative in the sick-room. Indeed, the lad's judgment was so sound and his knowledge so human and so broad that Hosack used to say that as a medical consultant he preferred him to any of his own contemporaries.

In 1810 Hosack established his *Medical and Philosophical Register*. He was stimulated to this venture largely by the enthusiasm of young Francis, for here was the latter's chance in medical literature. Up to 1814 the periodical was published anonymously, but in that year a new edition of the work up to that date was issued, and Francis's name appeared, joined with Hosack's, on the title-page. In 1813 the former had been appointed Professor of the Institutes of Medicine and Materia Medica in the newly organized faculty of the College of Physicians and Surgeons, so that he wrote himself *Professor* in the new book, although he was but twenty-five years old. He had found a chair as early as had Rush, and in the year of the latter's death.

So one may see how all those men of whom we are reading hung together and overlapped and corresponded with and consulted one another. The front benches of American medicine were not crowded a hundred years ago. There was no close corporation, for such a thing is impossible in science, despite the hysterics of certain modern penny-a-liners; but there were few well-cultivated men, and such as there were sought one another. We have noted Hosack and Rush exchanging letters of formal but kindly intimacy, beginning with "Dear Sir," and subscribed "Your obe^{t}, humble Servant." Here was Hosack's pupil and youthful partner editing a journal,

holding a professorship, and making observations in pathology which may still be read with profit.[3]

The four volumes of the *Register* are full of a great variety of information, and their delightful tone is due in considerable part to Francis's keen discrimination. Besides the collection of pathological communications, one finds biographical notices of distinguished doctors,—notices invaluable now to the medical historian,—essays on Climate, on Agriculture, on Canals, on Coal Deposits, on the Falls of the Ohio, on the Height of Mountains in Virginia and New York, on Steam-Carriages (1810), on Moral and Political Philosophy, on Fishes, on the Collections of the New York Historical Society, on the State of Medicine in America, its Hospitals, Schools, Curricula, and on a hundred other topics of scientific and general interest.

The reading of those books, as much as any writings then current, puts one in intimate touch with the best thought, the conditions, and the progress of the times.

Francis's career as a teacher was not long, but it was far from being obscure. He was a graceful talker, although to his audience he appeared at first as a short, stout man with an ungainly figure. But his traditions were good and he had inherited all Hosack's enthusiasm for the uplifting of the profession. So he became a popular lecturer; and while he developed no new theories and founded no new school of thought, his benches were always crowded and he held the classes in absorbed attention.

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[3] In the first volume of the *Register,* p. 35, there is a report by Francis of a case most interesting to surgeons to-day. He calls it a "Case of Enteritis, accompanied with a preternatural formation of the ileum." It is, in fact, an account of a patient who died of an acute septic peritonitis, due to strangulation of the ileum by a Meckel's diverticulum, coincident with an appendicitis. The report is illustrated with a beautifully executed wood-cut of the organs, designed by a medical student, Mr. Inderwick.

From the outset, too, he gathered and maintained a large paying practice, although his good-heartedness never shirked the calls of the poor. Indeed, so long as he lived he was a fine type of Thackeray's beloved Doctor Goodenough, and his carriage might be seen at night in the tenement alleys as often as before the Bleecker Street fronts. It was said that at his funeral a most touching sight was the stream of ragged and forlorn humanity which followed his coffin.

The twenty years of his life after 1811 were his busiest ones. Up to 1820 he was incessantly occupied with teaching, writing, and practising, and his receipts in that year were fifteen thousand dollars,—a very large sum for a young man but nine years in general practice in a small town, such as New York then was. At any rate, his work broke him down, so that he had to go to Europe for a year,—an experience which he vastly enjoyed. That was early in the period of which we are reading. He returned to New York in 1815, was at once appointed Professor of the Institutes of Medicine in the College of Physicians and Surgeons, and two years later added to his duties the chair of Medical Jurisprudence. In 1819 he added to these the professorship of Obstetrics; so that he had become almost as many-sided a man as the versatile Nathan Smith.

In 1826, with his friends Hosack, Mott, McNevin, and Mitchell, he resigned from the College to organize that new School of which we have heard the brief and brilliant record,—Rutgers Medical College. There he held the chair of Obstetrics and Forensic Medicine. After five years came the end of that institution by act of the Legislature, and with its collapse Francis's teaching career ended. He was but forty-one years old, and the remaining thirty years of his life, although busy and conspicuous in his community, have little bearing on our theme. He died on February 8, 1861.

There was a remarkable man of Baltimore and Philadelphia,—William Gibson. Some one should write a life of him; there is abundant material. Entirely aside from his services to science, here was a man well worth knowing. Scholar, sportsman, artist, athlete, musician, traveller, genial, accomplished man of the world, and delightful companion, few disciples of Æsculapius in this or any other country appeal so much to one's sense of what an all-around man should be. Doubtless he left no such great mark upon American medicine as did others, but let us learn something of him and wish for more of his kind.

In the first place, he lived eighty years, being born in Baltimore in 1788 and dying in Savannah in 1868.

He came of a well-to-do family and his father was able to have him educated liberally.

Gibson's Diary, continued through more than sixty years, tells something of his youth and early days,—topics made very live and interesting by his kindly pen. Those years, up to the age of fifteen, were passed in Baltimore and Annapolis. He went to the College in the latter place, where the distinguished Dr. McDowell was then principal; and, graduating thence, entered the Sophomore Class at Princeton in 1803.

He was an ingenious, sprightly lad, full of waggeries and vagaries, of humor, ambition, and cleverness, if not genius, and having a keen sense of the fitness of things withal; not easily led away by words and titles and the names of men in high places and other pomposities. While an undergraduate he was rather out of favor with the authorities as we might suppose, although later they came to love him; and he, grown famous, tells merrily of the anecdotes of his youth which his old pedagogues narrated.

But the College did not suffice him during his senior year. He must be otherwise employed, and therefore

took up the study of medicine at the Pennsylvanian School. That was in 1805, when he was seventeen years old. Here, as at College, his refreshing frankness spoke out on occasion; he was afraid of no one, and sent his gaping comrades shuddering to their diaries by remarking of Physick that before long he expected to succeed the old man as professor. The lads liked that sort of thing, but it frightened them. After a hundred years our young medical men are much the same, scarcely daring to call their souls their own. Some rare one rises now and again, but he breaks no spell and gains no followers. Gibson did not gain them, nor did Henry J. Bigelow, who much resembled him. Young men win fame in literature and art; young men become governors and statesmen and leaders of armies and masters of finance; there are great preachers who are young, and great travellers to whom their learned elders listen with respect; there is here and there an emperor. The world takes note of them and of the things they are doing well. Such men speak out eagerly without fear, sometimes without reproach. The young doctors do not. At least, they are mostly silent in the grave and decorous Eastern States. They are students, plastic and docile, while their contemporaries in the great world are making their voices heard. They are young practitioners wearily waiting for patients, or young scientists studying and teaching in the tracks which others have beaten, until middle age overtakes them, while their old college-mates are being made presidents and steel barons and railway kings.

Is it because *ars longa, vita brevis* weighs so upon them? *Vita brevis,* indeed. So much the more reason why they should speak out in season.

At any rate, Gibson made himself heard a hundred years ago, and to what purpose will appear. He did not stay long in Philadelphia, studying medicine. In 1806

he received his bachelor's degree from Princeton College, and left for Europe for a four years' sojourn. Of course, he went to the old familiar places, Edinburgh and London. The first three years were given to Edinburgh, and there he received the doctor's degree in 1809. But he studied other things than medicine, though that occupied most of his time. John Bell was his master in surgery. With Adam and Dalsell he devoured the Latin classics and the works of the great moderns. His thesis "De forma ossium gentilitia" is readable.

In 1809 he went to London, where he followed Sir Charles Bell, who became his friend. He also came to know well Cooper and Abernethy. In after-years he used often to talk about those heroes of his youth, but he always thought best of Bell. "Cooper," he said, "was a great man, but he did not possess the ability of Bell."

Gibson was what his Yankee friends would call a handy man. As a lad he was a clever mechanic. When seventeen he built a small house for amusement, together with a boat and other things. All craftsmen loved him. In London he took to painting, and at Sir Charles Bell's studied under Robert Haydon, the eccentric, enthusiastic artist who was then busied on Bell's great work on the hand.

Gibson was fond of music, too,—the art which has always so attracted men of his profession,—and while in London he became an expert violinist. And he loved life in the open air. He was given to long country walks; to fishing and botanizing. He was a distinguished ornithologist and an expert boxer. While a young fellow in America he was taught to spar by the famous pugilist, Jackson, and in London he took lessons of the no less renowned Tom Belcher. So he enjoyed splendid health, and with that to bank upon he got more out of life than do most men.

With all these distractions he was a brilliant and attractive student. Astley Cooper loved him, in spite of Bell, and foretold great things of him. He took him with him in his journeyings about England, so that Gibson came to know well a great many of the famous persons of the time; and the young man used to relate with pride how, as a rare privilege, he once went with Cooper to see an operation for strangulated hernia in the case of a very distinguished personage.

Those were the days of the Peninsular War, and though the relations of America with Great Britain were becoming daily more and more strained, Gibson entered with the greatest enthusiasm into the war spirit of England in her struggle with France. He could hardly volunteer in such a service, but his curiosity and ardor would not be denied a sight of what was doing. So in December, 1808, with some friends, he chartered a transport and sailed for the scene of the fighting. Shortly before this the British forces had landed in Portugal and driven the French under Junot beyond the Ebro. Napoleon himself had come to the relief of his distressed general, and with Soult forced the campaign which ended in the battle of Corunna, in January, 1809, and the evacuation of Spain by the English.

Gibson was there at the finish. He brought his transport up to that northwestern lands-end of Spain and saw the discomfiture of the English. It was there that Sir John Moore, his friend, was killed; and it was in memory of that event that Charles Wolfe wrote the familiar lines,—

> "Not a drum was heard, not a funeral note,
> As his corse to the rampart we hurried."

For the time being that was the end of Gibson's experience of European war, though six years later, when for the last time the English and French met, at Waterloo,

he happened to be travelling in the neighborhood, took part in the engagement, saw a deal of hard fighting, and received a slight wound. Indeed, he was a ubiquitous person, and was in the midst of most of the disturbances which were exercising men in the days of his youth. At that earlier time (1809), however, Corunna satisfied him. He went back to London, stayed his year out, and in 1810 sailed for America.

Then there began for him an active surgical life of incessant endeavor. He had scarcely settled himself at his old home in Baltimore when he became interested in establishing a medical department for the University of Maryland, and in 1811, together with sundry other spirits of kindred ambition, he succeeded in successfully launching the new School, himself in the chair of Surgery. Be it remembered that at this time he was only twenty-three years old.

The School throve apace, and Gibson seems to have been the great attraction there. He was a brilliant teacher and a bold, original operator. Of his teaching, especially in his later years, a great deal that is pleasant has been said and written. In an introductory lecture, long afterwards, he described his purposes, methods, and ambitions: "One thing above all others I pride myself upon; I have never, under any circumstances, failed to report, faithfully and honestly, the result of my practice and operations, whether favorable or unfavorable. I have never stated any important or marvellous case to the class without giving them proofs of the correctness of my statement, either referring to persons associated with me or to other circumstances calculated to fortify my own report."

Such words sound commonplace and superfluous now, but they were not so in those old times. And Gibson did the very things of which he tells. He did report his failures and he did show the proofs of his triumphs.

The then world of doubtful science wondered and shrugged and fell feebly into line. His doings were of a piece with his early prediction, that he would soon fill Physick's chair. Writers have compared his bold principles with Physick's practice. Who, it was asked, ever heard the announcement of Physick's failures? Yet, being mortal, he must sometimes have failed. At any rate, here was a clean, fresh breeze blowing aside the clouds and troubling the dust-heaps of spectacled conservatism and bewigged tradition.

As Gibson grew in experience he acquired a vast knowledge, which was always at the command of his audiences. He developed early a direct, homely, convincing, almost familiar style of lecturing; and his intimacy with the fine arts, literature, history, politics, and men gave him a storehouse of anecdote and illustration which he knew well how to use to captivate hearers. One of his old pupils said of him that he spoke straightforward and to the point, like a race-horse well trained. His words flowed readily and clearly,—anecdotes, cases, descriptions, quotations,—without hesitation or repetition. He was forever giving the young men good advice and moralizing upon life as he found it. He urged thoroughness and care, but he did not disguise the fact that these alone do not always bring professional success. His opinion of humbugs was not concealed. Once, in a burst of indignation, he said, " Yet, men will get along more by tact than by talent. I have known doctors pretend to cry with sympathy at the bedside and win the doting regard of silly women."

In those early days of teaching and practising it fell to Gibson's lot to do an operation which made him famous. In 1812, the year after the founding of the Maryland School, he tied for aneurism the common iliac artery,—an operation never before performed upon the living. It was a proceeding almost as bold and original

as Astley Cooper's ligature of the aorta, done five years later, but was also unsuccessful.

In those years, too, we were again at war with Great Britain, and Gibson had a chance to look at his old friends from the other side of the line. In 1814 he operated on Winfield Scott after Lundy's Lane and extracted a bullet. He saw the battle of Bladensburg and the repulse of the British at Baltimore, and from all these affairs he found abundant material for his surgical skill. The iliac operation case brought him before his world, and now, with the exception of Physick, he became the best-known and most popular surgeon south of New York.

There was always much of the boy in him. Business in Baltimore did not keep him from many hours of play, and his most constant playmate was a young lawyer who shall be nameless. The two used often to go fishing and duck-shooting together, and the following anecdote is told of one of these excursions.

They were shooting from their boat one day in the neighborhood of a surly fellow who was fishing. The fisherman became abusive at length and ordered them off his grounds. Thereupon the peppery Gibson jumped into the man's boat and gave him a sound drubbing. This disturbed the other so much that he brought a suit for assault, and Gibson called upon his legal comrade to defend him. The defence was successful and the fisherman had his trouble for his pains, but, to the chagrin of the athletic surgeon, his lawyer sent him a heavy bill of charges. Gibson managed to control himself and gave his overreaching counsel no hint of his irritation. Not long after the two went shooting again, and at lunch time sat down together amicably to share their rations. Unseen by his companion, Gibson managed to mix with the former's food a large dose of tartar emetic, with the result that the attorney promptly became frightfully sick.

The doctor rushed to his assistance, had him carried to a farm-house, attended him through an illness which he took no special pains to abridge, and when the patient was well enough to go about his business, sent him in for professional services a bill which balanced the fee in the assault case.

Practical jokes were the order of the day in those boisterous times, and no one seems to have thought anything of the matter except that the lawyer got his deserts.

Such were some of the accomplishments and pastimes of the man in his younger days, and much such a man he continued through life. For eight years he held the chair of Surgery in Baltimore, and had established so sound and brilliant a reputation as a teacher that in 1819, after the retirement of Physick, he was translated to the same professorship in the University of Pennsylvania. It was only fourteen years since he had made his youthful boast, and at the age of thirty-one he was holding the most important position (from a surgical standpoint) in the country.

During his years in Baltimore he had continued to study. In 1815 he made a second trip to Europe, this time spending some months in France, seeing Napoleon during the Hundred Days, and following the armies to Waterloo. Even in those busy times he made many friends. Napoleon is said to have taken a fancy to him, just as, later, such eminent Frenchmen as Velpeau, Ricord, and Victor Hugo numbered him among their acquaintances; and on the other side of the Channel he counted among his associates and correspondents Byron, Tom Moore, Dugald Stewart, Brodie, Jeffrey, Abernethy, Bell, and a dozen other such. Like Coleridge, he was a great talker, but a more agreeable person.

While in Baltimore, too,—indeed, before the founding of the Maryland School,—he married Sarah Charlotte Hollingsworth, and became in time the father of three

sons and two daughters. Later in life he married a second wife, by whom he had three children; and, adds the careful recorder, he was five feet seven inches tall, broad, and round-shouldered.

In Philadelphia—with which town his name is most commonly connected—Gibson had a long and honorable career. For nearly thirty years he divided the surgical honors with George McClellan,[4] his distinguished contemporary; and it was not until 1855 that the infirmities of advancing age compelled him to retire from teaching and from the Philadelphia Hospital, where he had long been the senior surgeon.

During those active years Gibson produced some writing of distinction. His best-known publication probably was his "Institutes and Practice of Surgery," which for eight editions was a deservedly popular text-book. But there were other publications of his which are better worth reading to-day. Such were his "Sketches of Prominent Surgeons" and "Rambles in Europe," his essay on "Eminent Belgian Physicians and Surgeons," and his numerous introductory and valedictory addresses before the students of the University.

It seems as though most of the prominent doctors of that generation had some hobby which they overrode. Rush and J. C. Warren tilted against windmills. So, too, Gibson took up his lance and led a crusade against tobacco. He became vice-president of an anti-tobacco society, himself eschewed the weed, and, in season and out, preached that it destroyed the nervous system and led to blindness. In other respects, however, he liked the pleasant ways of life. Good things to eat and drink were not abhorrent to him, and his wonderful faculty for after-dinner stories was famous through three generations.

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[4] George McClellan (1796–1847) was the founder of the Jefferson School and its first Professor of Surgery.

But the thing which most impressed his professional brethren was his astonishing frankness. They tell with admiration how he published in full his unsuccessful attempts to reduce by force old dislocations of the shoulder, and how in four cases he ruptured axillary arteries and the patients died. However, not all his striking surgical endeavors were failures. He lost the case of ligature of the common iliac; but, on the other hand, he had the unique experience of doing Cæsarian section twice on the same woman, with the result that the lives of the mother and both children were saved.

Of his remarkable memory, equal almost to Macaulay's, there are many anecdotes. One admirer relates how he made an off-hand bet that he could quote three hundred lines of Virgil taken at random; when, beginning with the second book of the Æneid, he reeled off the hexameters until his dizzy audience begged him to stop and the bet was paid.

He must, indeed, have been a pleasant, stimulating personage. Those days in Philadelphia were the ones in which Englishmen were getting their impressions of American life from Captain Hall's "Travels in North America" and Dickens's "American Notes;" and, looking at the contrasted pictures, one wonders at the state of the camera which could produce such varied negatives.

Gibson withdrew from the University at the age of sixty-seven. He had filled the professor's chair thirty-six years, and for thirteen years longer—a keen, bright-eyed old man—he watched the busy world.

It was a very tumultuous time for retired old age. The Civil War was in progress, and through much of it Gibson's native Maryland was sadly distraught. Aside from all that, the Nestor's usual habits were grievously interrupted. He was wont to say that, of all climates, Newport was the most delightful in summer and Florida in winter. However, he saw the end of the War of the

Rebellion, and resumed his travels when it was over. He remained so occupied until his death, which occurred in Savannah in the winter of 1868. If now he is in large measure forgotten, he seems to deserve a better fate.

James Jackson, of Boston, was for more than half a century the "beloved physician." He was a man of action and of brains, and he did not go through life altogether without conflicts; but it is as a healer of the sick that he will longest be remembered and most often quoted. Certainly it is a unique distinction. I know of no other American who, had he done nothing else, has left behind him so wide and sound a reputation as a practitioner of medicine. Not content with doing such work excellently well, he wrote a book about how to do it: a charming book, still to be read. He wrote it when he was an old man, inscribing it to his life-long friend, John C. Warren, and he called it "Letters to a Young Physician just entering upon Practice." In order to appreciate these letters, read first Oliver Wendell Holmes's review of them.[5]

For more than fifty years the names Jackson and Warren had been closely associated and conspicuous in Boston. The two had been youths and college-mates together; together they had advanced through life: never rivals, always close friends, emulous only for the improvement of the profession, for which they were keenly jealous, each working in his own lines. What Warren became as a surgeon, we have seen. Jackson was the accomplished physician. He was wise after the ancient fashion, and in these days of "the new medicine" that fashion is not to be despised. It was mostly a study of symptoms. The arts of auscultation and percussion were becoming known, indeed; rough chemical analyses

[5] Boston Medical and Surgical Journal, vol. liii. p. 197, 1855.

were made, and those things which appealed to the unaided senses were noted; but there were no instruments of precision with all the information which they now bring us.

The unaided senses seem very crude things to us, but it was amazing to what refined uses in diagnosis the physicians of those days put them. Fever was estimated by the sense of touch, the gravity of the condition by the sense of sight, the very nature of the ailment by the sense of smell, and the senses were trained to an acuteness of perception such as we see to-day only in the delicate fingers of the blind or the keen nose of the hound.

Of such training and knowledge Jackson was a master, and two generations of physicians had been reaping the benefit of his calm judgment and penetrating sagacity. Even more than for these Holmes prizes the long friendship: "Pre-eminence in circles that, without being identical, largely intersected each other, half a century of professional successes within the same narrow precincts, selection for the same professional honors; and out of this fiery furnace, fed with every possibility of rivalry and jealousy, comes this golden proof of unchanged and unchangeable affection, fresh as when the morning of the century set the stamp of heaven upon its face. Were there nothing in these pages but this single letter, there would be more to think of and to speak of than in many a volume which the author has martyred himself to spin out and the reader to shorten."

"Why 'doctors differ' so often may well be asked, but that they are apt to do so, candor itself must confess. Playwrights, caricaturists, and *farceurs* generally agree on this point and they cannot all be wrong about it. The reason of the fact is plain enough. Lawyers batter each other from behind their legal bastions in broad daylight; clergymen 'shell' offending brethren from their mahogany breastworks, in the face of assembled multitudes,

with loud explosions. But the doctor, though his face belongs to the street as much as the signs and door-plates, does most of his warfare, as well as his acts of mercy, under cover. Hence all buzzing scandals find a nidus in his track, and creeping hatreds are but too likely to be born from their deposits. . . . Then look on the fair picture of these two illustrious lives, rising in the same horizon, shining in the same meridian, declining to the same sunset, which have imparted only light and warmth to each other in the long path they have traversed!"

Those letters of Jackson were for years the *vade mecum* of every New England practitioner. From a literary stand-point they are wholly admirable, as a collection of judicious medical maxims they are almost unique. The scheme is as follows: A wise old doctor of abundant experience sits down with a young beginner and talks to him about practice. There is no pedantry, no quoting of authorities, no labored argument, no list of drugs. The young man is supposed to have studied his books and to be familiar with the rules, but he is nervous about his own acquirements and apprehensive of the effect he may produce on his first patient. The genial oracle takes him by the arm and tells him how to get himself in hand.

The first letter after the introduction is a little chat about conduct in the sick-room: how to be courteous and not bumptious, how to be impressive and not pompous, how to hide one's own misgivings and inspire confidence, how to inspect the patient without staring, how to handle him without mauling, how to draw conclusions and prescribe without exciting apprehension. It is probably the best letter of the collection, and ends with this confession: "I have often remarked that though a physician is sometimes blamed very unjustly, it is quite as common for him to get more credit than he is justly

entitled to; so that he has not, on the whole, any right to complain."

The five following letters deal with diseases of the nervous system and are full of useful suggestions; then come two on dentition. The ninth deals with cholera infantum, the next three with various infectious diseases, including pneumonia and phthisis, and ending with a pleasant essay on dyspepsia. The remaining six treat of gastro-intestinal disorders, calculi, irritable bladder, boils, and typhoid fever.

In all this the writer does not pretend to give the full symptoms of the diseases, but deals with them in a chatty fashion, pointing out familiar difficulties, sketching complications, and suggesting remedies.

It is a little book, but full of good things, and makes one wish that some wise man to-day would write a worthy sequel. Probably that bundle of letters illustrates the man—whom many of us remember—as well as does anything else pertaining to him; but the letters were written when he was approaching the end of a long and saddened career.

James Jackson was a child of strenuous Revolutionary days, and was born on October 3, 1777. As his grandson, James Jackson Putnam, has written, probably that portion of his life included between the years 1800 and 1825 is of especial interest,—" when medical education in New England received its great impulse through the development of the medical school, when the bonds of medical fellowship were cemented by the reorganization of the Massachusetts Medical Society, and the Massachusetts General Hospital was thrown open as a public charity."

Jackson was a native of Newburyport, Massachusetts; his father, Jonathan Jackson, and his mother were of the best old New England stock, the father conspicuous as a patriotic, public-spirited citizen. The son James was

the fifth of nine children, and grew up with his brothers and sisters in that charming Old-World atmosphere of good breeding, good books, self-restraint, and hard work which is still to be found in the New England by-ways. Jackson must always have been a person of singular attraction: gentle but courageous, sensitive but strong to endure, sympathetic but helpful and uplifting. Dignified he was withal, and gracious, pure of heart, and single of purpose. Stanch to his friends and charitable to all the rest, as befitted a philosopher.

His education was of the kind one would have expected: at first in the schools of Newburyport, later in the Latin School of Boston, to which place his father moved in 1785. Then the lad went to Harvard College, whence he was graduated in 1796.

Like his friend Warren, Jackson did not enter upon a medical career immediately after leaving college. He taught school at the Leicester Academy for a couple of terms, and would have been glad to pass his life at such work. Late in that same year (1796), however, his father brought him to Boston to be a clerk in his own office of Supervisor of the Internal Revenue. There he worked for a year, and then, when twenty years of age, entered the office of the veteran Holyoke in Salem and began the study of medicine. Unlike Warren, he embarked upon his professional studies *con amore*. He had felt for some years that it was a life which would satisfy him,—either that or teaching, and in the course of events he saw much of both. Like all young Harvard men of the time, he had also been given a taste of medical studies in College, as in Cambridge it was customary for the Senior Class to attend the lectures on anatomy, "practice," and chemistry given by the little faculty of which Warren's father was chief.

Jackson spent two years of pupilage with Holyoke, during which time he won the affections of the lady

whom he afterwards married. She was Elizabeth Cabot, eldest daughter of George Cabot, the distinguished Federalist. Moreover, the two years were made memorable in Jackson's life by the companionship of his "glorious old master," Holyoke. We have already heard something of that venerable man: how he lived to a great age and was given the highest honors by his fellows. Jackson always esteemed Holyoke highly, and in inscribing to him his thesis on the Brunonian System, in 1809, he says, "I cannot hesitate a moment to whom this dedication shall be made. By you I was taught to pay a sacred regard to experience as the source of all medical knowledge, and by you I was forbidden to resort to speculative principles as guides to practice except where experience failed."

That inscription gives the key-note of Holyoke's teaching,—a teaching very different from what was customary in those days. As Putnam graphically says, "The whole period covered by the joint lives of Dr. Holyoke and Dr. Jackson, which stretched from 1728 to 1868, or nearly a century and a half, witnessed a veritable revolution in medical standards, hopes, and aims; the transition from a condition of rank superstition to one of splendid achievement. Of this great transformation, Dr. Holyoke lived long enough to see the promise and Dr. Jackson a portion of the fulfilment."

In October, 1799, Jackson left his old master and his sweetheart and sailed for London for a ten months' absence. The captain of the vessel was his own brother Henry and the ship was the "Thomas Russell." He spent his time in study at St. Thomas's Hospital, where he served as dresser, besides working in surgery and anatomy with Cline and Astley Cooper at Guy's. He also followed the new practice of vaccination at the St. Pancras Hospital, under Woodville, and took regular courses of medical lectures. He had the renewed pleas-

ure, too, of finding J. C. Warren busied with the same tasks. All this work brought him into familiarity with the best surgery as well as the medicine of the day; but, in spite of his equipment in both branches, it was to medicine that he devoted himself almost exclusively for the greater part of his life. The medical teaching of the united hospitals was done by two eminent men, both of Guy's, William Saunders and William Babington. Jackson spent no time in travel or in visiting other medical centres. Late in the summer of 1800 he sailed for home, and on October 1, two days after reaching Boston, he began practice.

He brought with him from England a new therapeutic agent,—vaccine virus,—the use of which made him at once conspicuous. A short time previously Waterhouse had demonstrated the value of vaccination by employing it in the case of his own son and afterwards inoculating him with smallpox, without establishing a smallpox infection. Jackson instituted the practice at once, and though other doctors promptly took it up, the prestige of its first employment remained with the veteran teacher and the young beginner. In that connection he notes of himself this interesting memorandum: "On that question, in October, I derived one hundred and fifty dollars from that source and also just as much from other business; that made my fees amount to three hundred dollars the first month. In the remaining eleven months of my first year I earned five hundred dollars, or nearly fifty dollars a month, or eight hundred dollars for the first year."

It was a good start, fairly and honorably made, and the young man very properly took advantage of it. From the outset vaccination brought him into prominence, so that he had the unique experience of going through a long professional life without a day's obscurity. At the end of that first year, too, he took to himself the lady

who had promised four years before to be his wife, and so cheerfully assumed the burden of married life.

The year 1801 is also memorable in Boston medicine by reason of the return of J. C. Warren from Europe. He came, an accomplished surgeon. Jackson immediately recognized the fact and abandoned to his friend the surgical field. With such prospects the two young men plunged into their life work and were immediately conspicuous. In 1803 their first important public act together was the furthering a reorganization of the Massachusetts Medical Society. The year previous Jackson had received the degree of Bachelor of Physic from Harvard College, but it was not until seven years later (1809) that the degree of M.D. was conferred upon him. His admirable and scholarly thesis on the latter occasion was an arraignment of the Brunonian System, which was soon to go the way of all theories of medicine.

Throughout those years the old subject of medical education was continually recurring to him, as it has always recurred in the lives of physicians who have attained real eminence. Jackson was struggling with the matter, so was Warren, and so was Warren's father. It had long been evident that a medical school in Cambridge could never be great. The place was too inaccessible and too far from hospitals, existing or projected. In the beginning the School established by the College had been located within the College grounds. If that had not existed, however, it is certain that long before 1810 some medical school would have been established in Boston. Waterhouse was the stumbling-block to making the change, for he lived in Cambridge and was satisfied with the old order; but in spite of opposition, the removal was at last made, and in 1810 temporary quarters were found at 49 Marlborough, now 400 Washington Street, where instruction was given for three years. The two Warrens, Waterhouse, Dexter, and Gorham con-

tinued to teach, and Jackson was made Professor of Clinical Medicine, so as not to displace Waterhouse. In 1812, at the age of thirty-five, he became Hersey Professor of Theory and Practice, and held the chair until 1836. For several years, until the opening of the Massachusetts General Hospital, the Boston Almshouse on Leverett Street was utilized for clinical teaching.

The Massachusetts General Hospital was also an object of Jackson's earnest and useful endeavors. Equally with J. C. Warren, he was one of its founders, and it had a very important bearing on his career. That hospital work, the upbuilding of the School, and the reorganizing of the Medical Society were his three great public contributions to American medicine,—each of them a notable work had he done nothing else.

He was a conspicuous and popular teacher, though not brilliant; but he gained and held the confidence of his pupils. What he told them was sound, they came back to him for advice, and until his old age he continued to gain upon their affectionate regard as he did upon that of his countless patients. He moved in a class by himself. The striking thing is that the position he filled in 1812—in the days of our grandfathers—was still retained by him within the memory of very many of us who are now practising medicine.

Of those forty years after the establishment of the Hospital there is little to be said. Jackson's life was marked with the usual sunshine and storm which become the lot of most of us. He was busy and successful, and experienced no great crises save one,—the loss of his favorite son. That blow, however, was so grievous that it marked the man ever after; sorely wounded, but not broken-hearted, he survived his son thirty-five years. One corner of our little world was the richer for his sorrow, for it led him to the production of a Memoir which has become a classic among American medical writings. In truth, as

time passes, I am inclined to think that we are coming more and more to appreciate and benefit by that book. Of all his writings, not excepting the "Letters," it is the one most likely to find a permanent place in our literature. Ten years ago I read it first, and I have been reading it this very week with increasing pleasure.

In the narrative—and its title is simply "A Memoir of James Jackson, Jr., M.D."—the writer tells briefly the stimulating story of the young man's life, weaving into it the reflection of his own hopes, fears, and ambitions for the lad. He shows us a pure, gifted, and highly trained character; he follows him through his professional studies in this country and in Europe; he illustrates it all by quoting freely from their mutual letter files; and he leaves us a remarkable picture of the courage, high purpose, ability, and rare usefulness of both father and son. Indeed, the hearts of the two men were so united in life that the death of the younger served only to inspire the father to carry on the work of both. Already eminent himself, the elder Jackson seems to have thrown himself into his son's generation after the latter's death, and eagerly to have preached the new learning with which the young man had come laden from Europe. Gerhard, who was an intimate friend of the younger Jackson in Paris, wrote home, "He has superior talents, and his excellent education, conducted by his father, unquestionably the first physician in America, has cultivated his mind and developed an ardent attachment to medicine."

The Memoir is altogether charming and convincing. The father's partiality is rarely apparent; the work and writings of the young man speak for themselves. In truth, the father wins us at once by the gracious, noble dignity of his introduction. "Who will believe that I shall be impartial? I can say, however, that I would not willingly be guilty of exaggeration, if it were only from the love of truth which formed the most distinguishing

trait in his character. . . . He loved me as few sons love their fathers. But he loved truth better, and would not subscribe to any opinion because it was mine, though he was quite willing to submit to my direction and control."

The young man's life was a simple one. With the single exception of Elihu Smith, I know of no man in the profession of medicine in America whose short career was so rich in results and who left behind so touching a story.

He was born on January 15, 1810, the second son of his parents. In 1828 he was graduated from Harvard College and immediately took up the study of medicine under his father's guidance, attending at the same time the lectures and demonstrations at the Medical School and Hospital. It was a bright, generous, enthusiastic young life; free from guile, but strikingly intelligent and with eyes wide open to the good and evil in the world. Not a youth to cause anxiety to his noble-hearted father, though the latter admits a few qualms when he saw him sail gayly away to encounter the fascinations of London and Paris. But the qualms were needless, for the son had learned thoroughly the gospel of work. During the last three years at home his industry had been prodigious and his consequent acquirements remarkable. In Europe, and in Paris especially, it was the same story. The example of Louis there and the intimate friendship of Gerhard and Pennock were not likely to change his habits.

It was the life in Paris and the almost paternal affection of Louis for the young man that have made his professional studies noteworthy. While in that city he devoted his time mostly to three hospitals,—La Pitié, St. Louis, and des Enfans Malades; but it was to the first that he especially attached himself, for there he heard the lectures and saw the work of Louis and Andral. The routine of the days was remarkable, and is thus described

in a letter of Gerhard,[6] who followed the same course: "Dr. Louis is delivering an interesting clinic at La Pitié; he is a remarkable man, very different from the physicians of England or America, and remarkable even at Paris by the strict mathematical accuracy with which he arrives at his results; he is not a brilliant man, not of the same grade of intellect as his colleague at La Pitié, Andral. . . . The morning from seven to ten is occupied with the visit and clinic at the Hospital; there are several distinct clinics now in actual progress. . . . At this moment we are following Piorry at the Salpêtrière. From there we hurry to La Pitié; we hear a surgical lecture, reach home to breakfast, and then to the School of Medicine. The lectures at the School with a private course of anatomy during the hour of intermission fill up the remainder of the day until four. . . . We dine at five-thirty and then lectures again until eight o'clock."

Then there is this in another letter; it concerns Jackson as much as his enthusiastic friend: "I must write you at least a few days before the excitement has passed off; can you imagine how fortunate I am—*devinez si vous pouvez*—two or three days ago Jackson, Pennock, and myself were talking of hospitals and morbid anatomy, when the idea occurred of attempting the study of pathology in a particular manner. It was this: to obtain the specimens and study them, the authors in our hand, exactly and carefully comparing authorities with the subject before us. We addressed ourselves to two of the internes at La Pitié, attached to the *salles* of Louis and Andral, and they agreed to procure all facilities in their power and communicate their own information for the compensation of sixty francs from each of us. . . . Our first success in this opening of new sources of instruc-

[6] William Osler, Influence of Louis on American Medicine, Johns Hopkins Hospital Bulletin, vol. viii. p. 161, 1897.

tion emboldened us to attempt something of higher importance. We were all desirous of studying auscultation; of studying it in such a manner as to be sure of our ground on our return and to be capable of appreciating the advantages of the art. Louis's public instructions were valuable, but his private lessons upon a subject demanding minute and patient inquiry we knew would be infinitely more so. I therefore, in the name of my friends, addressed him a polite note accompanied by a handsome pecuniary offer; we did this with little hope of success, but happily for us he accepted our proposition, and next week we are his private pupils at La Pitié.

"We are, I believe, the first who have made this arrangement with M. Louis. Our advantages for the study of pathology and the diagnosis of diseases of the chest are now superior; they are, indeed, the very best in the world."

That was the beginning of young Jackson's intimacy with Louis,—an intimacy which lasted for the brief remainder of his life, and ripened shortly into a fatherly solicitude and affection on the one side and a rarely refreshing filial love and admiration on the other. Louis quickly perceived that he had at his hand a scientific jewel of price, and was urgent that the young man should postpone practice for four years and follow in his own footsteps as an investigator and recorder. His views, as expressed in letters to the elder Jackson, are well worth reading.

"It did not require much time for me to appreciate fully the sagacity and talent which your son possesses in the observation of nature. . . . Let us suppose that he should pass four more years without engaging in the practice of medicine, what a mass of positive knowledge will he have acquired! How many important results will he have been able to publish to the world during that period! After that he must necessarily become one of

the bright lights of his country; others will resort to him for instruction, and he will be able to impart it with distinguished honor to himself."

And again, "My only wish was that you should allow your son to devote himself exclusively to observation, for several years, in Boston.

"Think for a moment, sir, of the situation in which we physicians are placed. We have no legislative chambers to enact laws for us. We are our own law-givers; or, rather, we must discover the laws on which our profession rests. We must *discover* them and not invent them; for the laws of nature are not to be invented. And who is to discover these laws? Who should be a diligent observer of nature for this purpose, if not the son of a physician who has himself experienced the difficulties of the observation of disease, who knows how few minds are fitted for it, and how few have at once the talents and inclination requisite for the task?"

Of such sort was the young man, and it seems a hard fate which cut him off before those abilities were brought to fruitage. For various reasons his father decided to have him come home at the end of two years, and the son did so, with the purpose of entering upon practice. But the leaving Louis was bitter to him. He seems to have felt that he was seeing that great man for the last time, and wrote to his father, "I will not attempt to describe to you the agony it gives me to quit Louis. He is my second father, and God knows that is a name I, of all men, cannot use lightly. . . . From one upon whom I had no claim, but those which my life and mind and habits gave me, I have experienced a care, an affection which I never could have expected from any one but my dear father and which I shall ever feel to be the most honorable and truly worthy prize of my life."

It was the last prize of his life. Late in 1833 he returned to Boston. Early in 1834 Harvard gave him the

degree of M.D., and on March 27 of that same year he died, in his twenty-fifth year.

The effect on the father was overwhelming for the time, but he was not crushed. He had felt that his son was coming home to be to him another right hand, another brain; to tell him of the great things doing in Europe, to teach him new thoughts and new methods, to bring fresh enthusiasm, accuracy of system, and exact knowledge to supplement the wide experience of the older man. Here was an end of all such dreams; but, rising from the blow, Jackson first wrote that book about the lad,—a book teaching the inspiring lesson which every student of medicine should know,—and then he directed his own life and practice to advance and illustrate the new learning which had come to him in those last years. Like Bigelow, his pupil, he early came to recognize the shortcomings of the ancient therapeutics, and, though he never arrived at that pitch of "therapeutic nihilism" which distinguished Bigelow, he saw clearly the self-limited nature of disease and taught and acted in accordance with the new light.

He was first and last a frequent writer of other things besides his two best-known books. Putnam[7] gives a list of sixteen journal articles and sixteen more extensive publications,—books and pamphlets. Many of them are still useful; all are interesting. The following are some of Jackson's honors and titles:

Harvard A.B., A.M.; M.B. 1802, M.D. 1809, LL.D. 1854; Hersey Professor of the Theory and Practice of Physic; Professor Emeritus; Overseer of Harvard; President of the American Academy of Arts and Sciences; member of the American Philosophical So-

[7] James Jackson Putnam, Sketch of Dr. James Jackson in the Harvard Medical Alumni Quarterly for January, 1903.

ciety; honorary member of the Royal Medico-Chirurgical Society, London.

So through another generation, after 1834, his life and work went on,—a life well rounded, except for the one grievous loss, and always useful; to be remembered, among other things, for the high ideals, scholarly attainments, unflagging industry, and great love of his kind which always distinguished the man.

He died on August 27, 1867.

CHAPTER XIII.

THE NINETEENTH CENTURY. DANIEL DRAKE AND THE WESTERN SCHOOLS.

WHILE such strong characters as Rush, Hosack, and Bigelow were advancing medicine on our seaboard, there was living and working in the West a man of whom we must think as one of the ablest, and perhaps the most versatile, of the physicians that America produced in the first half of the last century: Daniel Drake, a fine example of that splendid Western type which built up a great empire out of the wilderness in the course of less than fifty years.

Hitherto, our experience of distinguished American doctors has been that most of them were men of gentle birth and good education, trained in our best schools and in the hospitals of the Old World, even the pioneers McDowell and Dudley having enjoyed that last advantage. For Drake there were none of these things, yet he was, in middle life, a man of broad culture, of keen sensibility, of wide reading; a scientific writer well known in Europe, a famous teacher, and carrying with him always an unflagging enthusiasm and the highest of ideals. To many of us to-day little more than a name, he was a man who profoundly impressed thousands of men in his generation, and our Middle West rightly regarded him as a great American.

Beginning life as the son of a struggling settler, in circumstances little different from those which surrounded his famous neighbor, Abraham Lincoln, he developed, while still a young man, into a leading citizen and the foremost physician of the West; and when he died, at sixty-seven, science lost one of her strongest men.

He was an all-around man, with abilities fit for diverse pursuits. He might have been a prominent lawyer, preacher, statesman, or engineer. Gross, who knew him well, says that he would have made a great Secretary of State, for he had the astuteness of a Webster, the subtlety of a Calhoun, and the indomitable energy of a Benton.

Most happily for medicine, however, his enthusiasm was turned towards that profession, and we must believe his most salient characteristics to have been a devotion to his calling and a boundless love for and faith in the Western country in which he always chose to live.

He was a founder of medical schools, and always wished to be regarded as a teacher. He was called to eleven different chairs in six different schools; he was an eloquent teacher, an able medical journalist, a wise and far-seeing promoter of great public enterprises, a hopeful and constant reformer, and the author of a monumental work on the "Interior Valley of North America,"—a work necessitating immense toil and research and of undoubted accuracy and value.

In one way or other he was associated with very many of the leading physicians and public men throughout the land, and the story of his life, more than that of any other doctor of his generation, with the possible exception of the elder Bigelow, shows the development of our medical progress in the first half of the nineteenth century.

Three years ago, at a meeting of the Mason County Medical Society in Kentucky, the orator of the occasion sketched a dreary picture of the early pioneer life, and told of the dull, humble hopelessness of the struggling parents of Daniel Drake, — down-trodden, despairing, bowed by the labor of centuries; then he told how, looking forward with simple faith for the future of their children, if not for their own present, they sacrificed

themselves to make of Daniel a doctor and a "gentleman." There is a pretty pathos in it all, but it hardly fits in with what we know of that rough, sturdy, hopeful West a hundred years ago, and Drake himself tells the story in quite another spirit.

First and last, we know a good deal about him. He wrote "Reminiscential Letters" to his children, his friend Edward D. Mansfield published a readable Life of him soon after his death, and the prolific Gross wrote of him much that is pleasant to hear.

Daniel Drake was born in New Jersey on October 20, 1785, and so was of the same age as Mott and Dudley. His father, Isaac, was the son of a farmer and miller who lived near where Plainfield now stands, and both the father and grandfather were frequently in arms for the patriot cause during the Revolution. In 1784 Isaac Drake married Elizabeth Shotwell, the daughter of a Quaker family, and Daniel was their eldest son. In 1788, when the child was in his third year, Isaac Drake moved West with his family and, after months of adventure in the wild country, settled, with a number of others, on a tract of land in Mason County, Kentucky. The place was about ten miles from the Ohio River; they called it May's Lick. Those were pioneers indeed. Forests covered the State, Indians abounded, men travelled fearfully, on the lookout for savages and wolves. The only town of any importance in the region was Lexington, founded about 1776, and so named after the Massachusetts village. Ohio, to the north of them, was even more of a wilderness; for the first settlement of that State had been made at Marietta only sixty-four days before our emigrants landed from their boat on the Kentucky shore.

In such a country, and in wild company, young Drake passed his boyhood. He describes much of it himself, and tells of a lawless, free, open-air existence, where human life was held cheap, where every man was a law

unto himself, and where whiskey and gunpowder were the commonplace of boys.

From his childhood Drake's father had purposed to make a doctor of him. The elder man, while voyaging down the Ohio River, became acquainted with Dr. William Goforth, an enterprising physician, well named for the adventure on which he was bent. Goforth was educated and able; he appreciated the sturdy courage and faith of the folk among whom he found himself; and, settling near them in the village of Washington, he lived there for the next eleven years, their sincere friend and well-wisher. Isaac Drake admired and trusted him, and when, in 1800, Goforth removed to the rising town of Cincinnati, across the Ohio, Drake sent his fifteen-year-old son, Daniel, to join him there and to become a doctor.

We are wont to think of that year 1800,—the year after Washington's death, — when our young country was struggling into existence, when the city of Washington was being laid out, when the seaboard was beginning to recover from the storm of war, when politics were running rampant, when Hamilton and Adams and Gouverneur Morris on one side and Jefferson and his like on the other were grappling in a battle that ended in the overthrow of the Federal party and the firm seating of a triumphant democracy—we are wont to think of all that as very long ago; and to feel that such history as we then had was confined to narrow limits. But on the banks of the Ohio a new nation was growing up, with a new civilization, with new purposes, and with new ideals, and here our wide-awake lad of the woods began the study of medicine and took his place in that new world. He was not the first Western student, as we know; but those others, McDowell and Dudley, were better born, as birth was then rated, and started with some tincture of

those humanities which Drake was to acquire painfully and always by himself.

Of course he was rough, uncouth, and illiterate; he could read and write, and there his studies ceased. He had intelligence, steadfastness, good health, and ambition, and he was going into the family of the popular physician of the region. Two years later Dr. John Stiles came out from New York, settled in the place, and became the partner of Goforth. Both men became the directors of young Drake.

The lad saw almost at once that he was an ignoramus in book-learning, but he had a keen and kindly tact with folk, and, in spite of disadvantages, acquired a precocious knowledge of human nature and an understanding of the meaning of symptoms which made him of great use to Goforth before his four years of apprenticeship were over.

Goforth was a good doctor and a busy man, but lacked business sense and was always in debt. He had a small medical library, which was at Drake's disposal, and decided notions of practice, gleaned from Cullen and the eighteenth-century masters. So Drake set to work reading Cullen and Haller, Cheselden, Boerhaave, Van Swieten, and Chaptal. With the advent of Stiles, fresh from the Eastern schools, he was introduced to Rush, and he devoured the writings of that American master, whom he admired profoundly through life. Besides, he ran errands, mixed drugs, and kept the books for his negligent, kindly preceptor.

What seems to have been quite as important a part of his education, he became associated with a company of superior people and began to polish his manners and broaden his horizon.

In those early days of national expansion democratic habits were much more common than they have since become in our present more complex civilization. The peo-

ple, rich and poor, gentle and simple, had a common birthright: they were American born; there was no great distance between the highest and the lowliest. In the outpouring westward from New England and the Atlantic States, men of all grades mingled freely together and, shoulder to shoulder, carved their way in the wilderness. Some remnant of such conditions may still be seen in the new towns of our far West. Men of education and some property were among the emigrants; they were taking with them their families and their penates; they were settling towns and buying farms; they were lawyers, doctors, promoters, as well as farmers and adventurers. While the country was being cleared and the virgin fields were yielding their first crops, these men were building schools, founding colleges, serving in legislatures, organizing societies for mutual improvement, and spreading broadcast the seeds of the best culture which they had known in the East. Then there followed roads and steamboats and canals, and railways a little later. It was a very remarkable company of pioneers, always building and establishing and developing and moving forward; leaving behind many untilled spaces, as we still see, but always progressive, until within sixty years after the close of the Revolution they were stopped only by the Pacific Ocean, two thousand five hundred miles from Yorktown.

Cincinnati was one of the halting-places of this advancing tide. In 1800 it was a small, rude town, with an army post,—Fort Washington; and among the conspicuous citizens were men whose names are known today in the region: Symmes, Harrison, Findley, Gano, Stone, Longworth, Wallace, Zeigler, Stanley, Hunt, Yeatman, and the like. There was a small, agreeable society and that open-hearted, kindly, universal hospitality still so characteristic of the South and West.

It was among such pleasant folk and such surround-

ings that young Drake found himself when, at the age of nineteen, he finished his apprenticeship and began to practise medicine as the youthful partner of Goforth. The practice and the partnership at that time were, however, of very brief duration. Goforth was over head and ears in debt, and though there were patients in plenty, the arrangement soon became profoundly distasteful to the punctilious and ambitious younger man.

Besides, he had already discovered his own deficiencies of education, and felt the futility of attempting to rise in his profession without academic associations or the dignity of the doctor's degree. But he continued to practise for a year, trying to get together a little money. Then he started East. In that year (1805) there was but one school worthy of consideration, — that of Philadelphia. Harvard was struggling into life, and was granting a bachelor's degree only; the New York School was moribund, Dartmouth was as yet insignificant and unknown, and the neighboring Transylvania had been still-born some six years before. Pennsylvania certainly was splendidly pre-eminent to one observing it from another region, as did Drake; and, that he might not lack the dignity of good accomplished, Goforth issued a diploma to him on the eve of his departure,—an "autograph diploma setting forth his (Drake's) ample attainments in all the branches of the profession," and subscribed himself "Surgeon-General of the First Division of Ohio Militia." So Drake's was the first medical diploma ever issued in Ohio, as he himself had been the first medical student of the State; and Goforth becomes luminous as the first diploma manufacturer of the West.

The Philadelphia experience was mostly a disappointment. Drake went there in the late autumn and lodged with a motherly Mrs. Brown, who mended his shirts and cooked his breakfast; he attended the lectures of Rush, Woodhouse, Wistar, and Physick, paying for the term's

tuition seventy hard-earned dollars. He learned somewhat of the ways of cities and men, came to know Barton the distinguished botanist, who treated him kindly, and became acquainted with young Dudley, of Kentucky, who was there on the same errand as himself. He studied hard, lived sparingly, spent all his money, made no effort to secure the degree at that time, and, after six months, returned to the West.

He wanted to be near his parents after the six years of separation; so for a year he settled down and practised at May's Lick; then he went to Cincinnati; and there, for the purposes of this sketch, he remained until the end of his life. It was in April, 1807, that he took up his abode there once more. Two days later he wrote, "The town, I am told by the physicians here, is very healthy at this time. How I shall succeed cannot yet be determined. Several persons of respectability have called and assured me that I shall have their patronage and support. Upon the whole, appearances are rather flattering." Not a bad account of himself, and framed in words well chosen for a lad but seven years civilized. Indeed, that command of a good English style, with clean-cut phrasing, is one of the notable things about this self-made man of action, and his clear, bold signature—"Dan. Drake"—is still to be seen in his manuscripts.

Aside from practice, which began promptly to flow in upon him, Drake mingled constantly in the best society of the little place, and we hear of him as a leader in the young men's debating club, of which he said, years afterwards,[1] "I can recollect no association for mutual improvement except this primitive, old-fashioned organization, which I really think has done much good in the world."

As might be expected, the next thing to engage the

[1] Discourse before the Medical Library Association.

twenty-two-year-old doctor was matrimony. Accordingly, he became a constant visitor at the house of Colonel Jared Mansfield, the government Surveyor-General for the Northwestern Territory; the chief attraction of the house being Harriet Sisson, his host's youthful niece. She was an intelligent, high-spirited, charming girl, just the wife for an ambitious man, and the two were happily married in the autumn of 1807.

The next seven years were devoted to a growing practice, some little money-getting, and the rearing of children. He never ceased studying, though, following the course he so wisely laid down twenty years later in his essay on Medical Education. Climatology, botany, and kindred topics absorbed all that time which such busy men as he call their leisure, and three years after his marriage he published a useful little volume, entitled "Notices of Cincinnati: Its Topography, Climate, and Diseases." Five years later there appeared his more ambitious book, —"Picture of Cincinnati and the Miami Country."

Such studies and such essays brought the young man much more than local notice. The publications were read in the Eastern States and even made their way to Europe. No similar description of American frontier life had hitherto appeared; and scientists and scholars, as well as emigrants and promoters, found material and profit in these writings. We can see to-day the land and the men in the convincing pages; and perhaps we can appreciate even more than did Drake's contemporaries the pains and research involved in the work,—the exhaustive marshalling of facts and the truthfulness of the descriptions. The young West certainly had developed a man of science.

With his marriage and this first conspicuous publication Drake may be said to have been launched finally upon professional life. He was now twenty-nine years old, and his occupations as author, practitioner, and teacher of medicine constantly increased during the rest of his life.

He was a voluminous writer, and his contributions to medical journals in the form of essays, reviews, and bibliographical notices, his temperance lectures, and his public addresses would, if collected, says Gross, form several large octavo volumes. They were, during the early years of the century, very valuable contributions to medical progress in the Middle West, and though, in the nature of things, eventually ephemeral, they were felt to be very real and important at the time.

One of his most conspicuous enterprises as a writer was the founding, in 1827, of the *Western Journal of the Medical and Physical Sciences,* a useful and popular periodical, which was continued for many years. During the first year the paper was edited by himself and James C. Finley, but in 1828 he assumed the sole editorship, which he continued until 1836. This work absorbed him largely for three years longer, when, owing to the dissolution of the Medical Department of the Cincinnati College, the plant was transferred to Louisville and merged in the *Western Journal of Medicine and Surgery.* Drake continued as an editor of the new journal until 1848, when he finally withdrew from the enterprise.

As he developed by experience and contact with the world, he acquired a great charm of manner, which, added to his native sweetness of temper and his simplicity, brought a popularity with all sorts and conditions of men. There was no mistaking his sincerity. It was the large, warm heart of the man, worn openly, which none could fail to recognize, that gained for him first the love and affection of his people; after that, his abilities and powers made themselves known. One of his most amiable qualities was his devotion to and love for that Western land. Its great stretches of prairie and forest, its noble rivers, its lakes, its air, its climate, and its people were very really and truly dear to him, and in his earnest, kindly way he was forever saying so. He was a man of fine

feelings and a glowing patriotism; he realized in himself abilities of an unusual order, and so early set before himself, for his life-work, two great undertakings,—the upbuilding of medical education in the West and his monumental volumes on the "Diseases of the Interior Valley of North America." The two topics do not seem to lend themselves readily to entertaining description, but the enthusiasm of the man and his original endeavors illumine the ponderous themes.

Let us follow these two lines of his life-work, then, noting briefly what he accomplished and in what he failed.

In 1815, as he had not yet received a medical degree, he went back to Philadelphia for a session of study. Already widely known for his writings, he found himself much more of a personage than was the simple boy of ten years earlier; but he withstood outside attractions, he stuck to his books, and in a few months secured a diploma from the University. In May, 1816, he returned to Cincinnati, and soon became involved in the ambitious projects which occupied the remainder of his life.

Drake was plunged into teaching in 1817, and this is the manner in which the amazed young man announced the fact to one of his friends: "I am now going to astonish you,—so cling hold of every support within your reach,—*I am a Professor!* Yes, incredible as it may appear to you and my other intimate friends, *I* am really and *bona fide* appointed a Professor; and I repeat it on this side of the sheet to save you the trouble of turning back to see whether your eyes did not deceive you. I am, let me repeat, unquestionably a Professor. . . . In Lexington (Kentucky) there has been for many years an incorporated seminary styled the Transylvania University. . . . The trustees have established a faculty of medicine. The Professorship of Materia Medica and Botany

is the chair they have offered to me, and five days ago I signified my acceptance." He renewed a partnership with his old master, Goforth, now returned from profitless wanderings, and so, dropping practice for half the year, he proceeded to Lexington for the winter's work.

We have heard something of that Lexington School before, and of the doings and duellings of the diligent Dudley. They used to call Lexington the Athens of the West, and that Transylvania University was the Acropolis.

Drake took his place modestly among the little company who served there, and began to teach the rude youth of the land.

He moved his family to the town; he prepared himself for what he expected would be his life-work; he taught zealously and successfully for a term, and then left it all in disgust.

His enemies used to say that he was too much of an autocrat,—that he would never serve where he could not have a free hand. This seems severe on a person whom his friends described as the most mild-mannered of men. The trouble he found with the Transylvania School seems to have been the bumptiousness of Dudley. That restless enthusiast was in hot water with his colleagues so long as he lived and taught. Drake recognized this impossible characteristic of his associate, and wisely decided to avoid, by flight, any chance of hostilities.

From now on, and for many years, he flitted from school to school; founding, strengthening, struggling, and resigning to such an extent that it is hard to see how he ever could have made time to establish his reputation as a great teacher; to that greatness his pupils have borne abundant testimony. He had the rare trait—the first requisite in a successful teacher—of showing an earnest, whole-souled desire that his students should know what he knew. He did not value himself for his own holdings-

forth, but for the results of his teaching as the pupils showed them.

He was in constant protest against the preposterous system of his day, which threw all classes of students—Juniors and Seniors alike—into the same lecture-room, to pick up what scant knowledge they might. He appreciated the advantages of a graded course, and of separating the beginners from the more advanced, though he was not destined to see that change take place.

He protested, too, against the ignorance and illiteracy of the young men as they came to the Medical Schools. Little beyond the elements of reading and writing were demanded of them, so that a broad and philosophic view of science was forever denied them. Their first two or three terms, consequently, were occupied in trying to master the meaning of what they were set to do; and it was not until the latter part of their course that they were able to gather any great benefit from the lectures.

Considering the sort of student material with which they had to deal, therefore, perhaps the system of those old professors was well enough. They gave the same lectures to the same students for two successive sessions, and trusted that by the end of the repetition something of knowledge might have sunk in. Most of them, however, out of consideration for the inexperienced newcomers, kept their utterances at an elementary level.

Drake refused to be confined to any such limits. He lectured for the best of his students, not for the worst. So the beginners under him sat in dull and floundering puzzlement; but the Seniors and young graduates adored him.

Probably the fundamental reason for Drake's frequent changes of scene was his high ideal of what a Medical School should be. Most of the small schools of that time were private enterprises, conducted as businesses by a small body of men, and the profits derived from the stu-

dents' fees were divided among the teachers. Naturally, the average teacher was ambitious of attracting pupils, and subordinated, if he did not actually prostitute, science to this motive. With such purposes Drake had no sympathy. He was born with the true spirit, and the machinations of many of his colleagues disgusted and offended him.

Some such reason was at the bottom of his resignation from the Lexington School. He writes to a friend: "On the 23d of March, being dissatisfied with the Medical College, and not relishing the idea of a removal to a strange town, of prospects inferior to those of Cincinnati, I resigned my professorship."

A great Western school was his ambition, but it was not to rise in Lexington.

Though disappointed with such experiences, Drake was not in the least discouraged with teaching. No sooner had he returned to Cincinnati, in 1819, than he set about promoting a medical school and hospital there, the school to be called the Medical College of Ohio. A considerable endowment was secured and a charter from the Legislature obtained through his exertions. Though so far successful, however, he met constantly the opposition of two of his colleagues, who worked together to secure control of the new institution.

In consequence of these personal controversies, the School did not get under way, as it should have done, in the autumn of 1819; but in 1820 the new faculty was organized, and the School opened with Drake as Professor of the Institutes and Practice of Medicine.

Rohrer held the chair of Materia Medica and Pharmacy. Jesse Smith was Professor of Anatomy and Surgery, and Elijah Slack, A.M., was Professor of Chemistry and President of the Cincinnati College. From the start Drake was the moving spirit in educational matters, though he proved to be as clay in the hands of the medical

politicians. He believed firmly that Cincinnati was to be the site of the great Western Medical College of which he dreamed, and while he lived he clung to that idea. He said that the reasons for a great school there lay in "the obvious and increasing necessity for such an institution in the Western country, and the peculiar fitness and advantages of this city for the successful execution of their project. These are: its central situation, its northern latitude, its easy water communications with most parts of the Western country, and, above all, the comparatively numerous population. . . . The professors placed on this ample theatre will therefore have numerous opportunities of treating a great variety of diseases. . . . Finally, every medical man will perceive that, amidst so mixed and multiplied a population, the opportunities presented to the Western student for the study of practical anatomy will altogether transcend any which he can enjoy without visiting and paying tribute to the Schools of the Atlantic States."

Most unfortunately for the School and for Drake himself, a strong party in the faculty, backed by influential friends among the laity, was promptly organized to oppose and thwart him, and, when their power was seen and their minor purposes proved successful, they proposed to get rid of him altogether.

Drake held, by law, the senior place in the little faculty and was their president. That fact did not at all dismay his opponents. During the second term of the new School, at one of the regular faculty meetings, while Drake was in the chair, a motion for his expulsion was introduced. He was obliged to put the question, and it was promptly carried. As his biographer says, "Such an act shocked the public mind, and is an illustration of the loose morals as well as bitter controversy not uncommon in the medical profession."

At any rate, that was the end, for the time being, of the

Medical College of Ohio. It was started again after some time, but in the hands of responsible trustees, of whom General Benjamin Harrison was the head, and of its subsequent career we shall hear something later.

For two years after this abrupt dismissal from his professorship Drake led a quiet life in Cincinnati, retired from active conflict, and attending to his own professional affairs. Then, in 1823, he was again called to Lexington.

Whatever may have been the actual and prospective relative merits of Cincinnati and Lexington, there is not the slightest doubt that the Transylvania School in that third decade of the last century entirely outclassed the Ohio College. It was officered by men of ability and attainments; some of them men of national reputation before or since. Holly, of Boston, had recently gone there as head of the Academical Department; our old acquaintance, Charles Caldwell, was Dean and Professor of the Institutes of Medicine; Dudley, of course, continued in the chair of Anatomy and Surgery, and William H. Richardson in that of Obstetrics. To Drake was assigned the chair of Materia Medica and Medical Botany. Two years later, in 1825, on the resignation of Samuel Brown, Professor of the Theory and Practice of Medicine, Drake was transferred to the vacancy, and there he remained until his resignation from the School in 1827.

Those four were among the most successful teaching years of Drake's career. He was thirty-eight years old when he went to Lexington, full of fresh energy and ambition, and at the height of his powers.

During those Lexington years he must have passed his time most agreeably with congenial associates. With Caldwell he was on good terms, though that eccentric man's views on phrenology, on spontaneous generation, and on disease in general differed as radically from his

own as they did from those of most careful thinkers, even in that era of extravagant and daring speculation.

During those years, too, he began the series of extended journeys which were undertaken in connection with his great book on Diseases of the Mississippi Valley. Those travels, his increasing consulting practice, which took him far from his base, his growing interest in large public enterprises, and his literary activities induced him, after four years, to settle again in Cincinnati, and there accordingly we find him in 1827.

There he seems to have worked steadily and agreeably until 1830, when we see him suddenly transferred to a still broader field, and his fifth professorship, the chair of Medicine in the new Jefferson College in Philadelphia. For some reason which does not appear, Drake went to Philadelphia with no intention of staying there permanently. It seems likely that he was growing restless for his beloved teaching, and took up the work at Jefferson as a pastime until he could find something more to his mind. The School started the term with about one hundred students, and, from all accounts, Drake was immediately as popular with them as he had been with his previous classes. He resigned before the year was over, however, and hurried back with new schemes to Cincinnati.

Of course, the only point of interest for us in this experience of Drake's is the fact that he should have been called East at all, and the evidence therein of his salient work and wide reputation.

He left Philadelphia to found another medical school, —this was a little thing,—to be mentioned here and dismissed. It was to be a department of Miami University, at Oxford, Ohio. The scheme fell through at once, for the friends of the College of Ohio saw in Miami a dangerous rival, and broke it up by offering positions in their own faculty to the Miami teachers. The teachers went,

and with them meekly went Drake. It was for a few weeks only, and at the end of the session he resigned.

Four years later he went at his teaching again with renewed enthusiasm. He was convinced that the Medical College of Ohio was never to succeed as it was then managed, and, jealous for the reputation of his beloved Cincinnati, he attempted to square the conditions by organizing a medical department in the Cincinnati College. If talent could count, the new venture should have been a brilliant success, for Drake gathered about him a very able and enthusiastic corps of teachers,—young men who gave the School a great reputation throughout its brief career, and became later well known in wider fields.

Drake himself took the chair of Medicine; L. C. Rives, the distinguished obstetrician, became Professor of Obstetrics. Other familiar names were those of J. N. McDowell, J. P. Harrison, James B. Rogers, later of the University of Pennsylvania; Horatio G. Jameson, so long famous in Baltimore; Samuel D. Gross, the eminent surgeon and bibliographer; and Willard Parker, who was for years an ornament of the profession in New York City. And it is worth remembering that the chair to which Gross was assigned was that of Pathological Anatomy,—the first of the kind established in this country.

Of all Drake's teaching experiences and experiments, this of Cincinnati College was the most promising in conception and in immediate results. He was given a free hand; indeed, Rives, McDowell, Gross, and himself were the projectors and chief supporters of the School. He was surrounded by an able and congenial company of teachers; but, most unfortunately, the School contained within itself the elements of failure,—the same elements which had wrecked so many other promising schools throughout the land,—it was a private venture. Already in 1835 the elaboration of scientific study and teaching had advanced so far beyond the primitive days, when all

a school needed was the man, that without proper laboratories, buildings, and their equipment, together with an endowment to carry them on, it was found impossible to succeed.

The enterprise should have succeeded. It embraced the ablest body of teachers as yet gathered in the new West; enthusiasm, training, spirit, and audiences, all were there; but the community failed to support them, and after four brilliant years of constantly increasing fame the project came to an end.

A contributing cause of this failure was lack of business sagacity. Drake was no business man in the narrow sense. He had imagination and the gifts of the prophet, but he could not make his books balance. That was one of his misfortunes through life. Great business schemes, for which Cincinnati still stands his debtor, failed while in his promoting hands. His sanguine nature shirked detail.

So the little faculty was scattered,—Rives to the College of Ohio, McDowell to the University of Missouri, Rogers and Gross to Philadelphia, Jameson to Baltimore, Willard Parker to New York, and Drake himself to the University of Louisville, where was created for him the novel chair of Clinical Medicine and Pathological Anatomy. In that he taught until 1844, when, on the retirement of his colleague Cooke, he was transferred to the chair of Medicine, which he filled until 1849, when he resigned just before reaching the age of sixty-five, which had recently been fixed by the Trustees as the age of retirement. It was a good rule, but acted to the disadvantage of the School in this first instance, for the Trustees lost their strongest teacher.

The winter before Drake's resignation he was lecturing to a class of four hundred,—up to that time the largest Western class of record.

With bewildering facility Drake immediately found

another professorship; this time in the still floundering Medical College of Ohio, which he had founded thirty years before. Strangely enough, and in spite of the scurvy treatment he had received from the Ohio College, Drake seems always to have loved it,—at least, he says so. In his introductory lecture there at this time he told in brief outline the story of his teaching career, and how always, in his wanderings, his heart had turned back constantly to this first affection.

He had returned to his early home and his early school with the applause and cordial good-will of all who looked on, his old enemies included; yet even now he stayed but one term.

The next year he was recalled to Louisville, the Trustees of the College there having revoked their rule of an age limitation for the teachers; there he remained for two sessions, when he again returned, in 1852, to Cincinnati and his chair in the Ohio College, now reorganized, with a strong faculty and under brighter auspices. Here it was, just at the beginning of the session, full of hope and energy and new ambition, that he came to the end of his labors. He died of acute meningitis.

At the time of his death, which took place on the 6th of November, 1852, he had just completed his sixty-seventh year. But he was not "due to die." Much work still claimed the man, and his taking off seemed untimely.

Drake's teaching career was so long, so varied, and so full of startling changes that it is impossible, with interest, to follow it in detail. But in spite of this he was always a great and growing power for good in that Western country. He came in contact with many hundreds of young men under many and varied conditions, and he always brought them a message worth their hearing. He taught what all great teachers have taught,—a love of his profession and of science for its own sake; that the art truly is long and not lightly to be attempted, and that,

even so, the faithful physician in dealing with his kind must place the humanities before all else.

So, though he was found testifying to many men and in diverse places, his message was always the same; and, as the perverse Fates would have it, he tarried longest and taught the most, not in his beloved Cincinnati, but in the neighboring Louisville, where he labored more than ten years.

It was in Louisville, too, that he wrote the most of that monumental work which men said would make him immortal, "Sic Transit;" and he wrote it while looking always back to the Ohio shore. It was the work of his prime and his old age. Here is what he told his students of the Ohio College about those days when he went wandering about the world; it is florid talk, but one finds it ringing true.

"My heart still fondly turned to my first love, your alma mater. Her image, glowing in the warm and radiant tints of earlier life, was ever in my view. Transylvania had been reorganized in 1819, and included in its faculty Professor Dudley, whose surgical fame had already spread throughout the West. In the year after my separation from this School I was recalled to that; but neither the eloquence of colleagues, nor the greeting of the largest classes which the University ever enjoyed, could drive that beautiful image from my mind. . . . I was subsequently called to Jefferson Medical College, Philadelphia; but the image mingled with my shadow. And when we reached the summit of the mountain, it bade me stop and gaze upon the silvery cloud which hung over the place where you are now assembled. Afterwards, in the Medical Department of Cincinnati College, I lectured with men of power; but the image still hovered around me. I was then invited to Louisville, became a member of one of the ablest faculties ever embodied in the West, and saw the halls of the University rapidly filled. But

when I looked in the faces of four hundred students, behold, the image was in their midst. While there I prosecuted an extensive course of personal inquiry into the causes and cure of the diseases of the interior of the continent; and in journeying by day and journeying by night,—on the water and on the land,—while struggling through the matted rushes where the Mississippi mingles with the Gulf, or camping with Indians and Canadian boatmen under the pines and birches of Lake Superior, the image was still my faithful companion, and whispered sweet words of encouragement and hope. I bided my time; and after twice doubling the period through which Jacob waited for his Rachel, the united voice of the Trustees and Professors has recalled me to the chair which I held in the beginning."

To him who reads, the *image* is not altogether clear; but the sentiment is; and the little paragraph is articulate of the purposes, vicissitudes, and accomplishments of the man's life.

It was in the early twenties that Drake announced his plan of writing a great work on the "Diseases of the Interior Valley of North America," but he did not publish it until 1850. It was a great ambition. Even now it is fair to rank the volumes among our few American Medical Classics, to be placed on our shelves with Morgan's "Discourse on Medical Education," John Jones on the "Treatment of Wounds," Bard's "Angina Suffocativa," Bond's "Study of Clinical Medicine," the writings of Rush, Nathan Smith, Bartlett, Carey, Currie, James Jackson, Ramsay, Thacher, and half a dozen others. We cannot make a great list, but we can make a strong one, and that work of Drake is among the strongest. In size, at least, it is not lacking, for it comprises two great volumes of near a thousand pages each.

It was the success of his "Picture of Cincinnati" that stimulated Drake to his greater work, and the latter grew

out of the former. Truly, it was the work of a pioneer. There were no books to be consulted. He was cultivating a virgin soil. It meant for him years of investigation and thousands of miles of travel. He geologized, botanized, and surveyed. He visited hamlets and cities, hospitals and wigwams; he sailed lakes, rivers, and seas; he tramped forests, prairies, mountains, and swamps; he consulted with scientists in their laboratories, with Indians about their fires; he mingled with country doctors, with soldiers and trappers; with miners, frontiersmen, and Canadian voyageurs. He covered the whole land systematically, painfully, faithfully, from Hudson Bay to the Gulf and from the mouth of the St. Lawrence to the head-waters of the Missouri.

Besides numerous brief excursions and the conduct of an enormous correspondence, Drake visited, in the ten years between 1840 and 1850, Louisiana, Florida, Mississippi, Alabama, the waters of the Gulf of Mexico, Kentucky, Tennessee, North and South Carolina, Virginia, Pennsylvania, New York, Illinois, Indiana, Michigan, Iowa, Wisconsin, Missouri, the Great Lakes, and Canada. He travelled on horseback, on foot, by railway, steamboat, stage-coach, and canoe. He was indefatigable; he endured all things. Wherever he went in civilized regions his fame preceded him, and he met with unfailing cordiality and encouragement. Even in the wilds of the Northwest and in the swamps of the Gulf Coast, the ignorant Indians and negroes came to feel for him an instant respect and admiration.

During these journeyings he was always writing, and much of his material, in the form of letters and editorials, was published in his own *Western Journal of Medicine and Surgery,* at Cincinnati. Those papers of his make that periodical one of the most interesting scientific journals of the time. They are full of strong, original observations and records,—dealing with men and manners,

with peoples and lands, with wild creatures and seasons, with the great forces of nature, and with the diseases from which folk suffered in those widely distant parts.

To the man who has not himself travelled those vast regions, it is impossible to convey an adequate idea of the magnitude of Drake's labors, beside which those of Hercules himself seem very modest affairs. His observations were never superficial nor his progress hasty. He stopped at all the villages, he explored all the streams, he climbed all the hills of which he writes, and he talked with every man who had anything to tell him of the business in hand.

Truly, if he had done nothing more than explore, he would still remain to us one of the notable characters of American medicine; but he wrote about it all, and we still take down his volumes from our shelves.

For us the interest in Drake's great work is historical rather than immediately practical. His chapters cover in exhaustive detail the topography of the regions described, together with a brief account of the diseases peculiar to those various regions; and tell how the diseases assumed different characteristics, according to the changed conditions of geography and race affected; for his purpose was to point out especially the peculiarities of the Caucasian's ailments as compared with those of the Indian and Negro.

He then devoted many chapters to Climatic Etiology and Physiological and Social Etiology.

His second book deals with febrile diseases, especially "Autumnal Fever," "Yellow Fever," "Typhus Fevers," "Eruptive Fevers," "Phlogistic Fevers," and "Phlegmasia."

Drake's old friend Gross, commenting on these two volumes, says, "The two together constitute a monument of the genius and industry of their author as durable as the mountains and the valleys, whose medical his-

tory they are designed to portray and illustrate. The toil and labor expended upon their production afford a happy exemplification of what may be accomplished by the well-directed and persistent efforts of a single individual, unaided by wealth and unsupported by the patronage of his profession."

The second part of the estimate is doubtless true.

Now, Drake was more, even, than a brilliant teacher and a voluminous writer. He was an enthusiastic, public-spirited citizen, and man of affairs. A recent reviewer has said that he made Cincinnati what she is. Though Cincinnati would have thriven without Drake, she does owe him much for stimulating her infancy, and the list of his enterprises would be a long one. He is described as a man of not one, but many, characteristics. His very look, manner, step, and gesture were characteristic,—the outward signs of his peculiar nature. So, too, his conversation, voice, and modes of expression all tended to stamp him as an extraordinary personage. But there was one feature standing out prominently which distinguished him from many men, and that was concentration, strenuousness, intensity of thought, action, and purpose. It was this, doubtless, that made for whatever of success or failure came to him. It showed in his devotion to his family, his loyalty to friends, his love for his profession, his power as a teacher, his ability as a writer, his zeal as a promoter, his hatred of the ignoble. He was forever throwing himself into the breach; and in this way, though the sum of his accomplishments was great, he wasted through life more superb energy than is given to most of us for positive success.

In early life, not content with a growing professional reputation, he established in business, under their joint names, a younger brother; and through the failure of the enterprise he became involved in years of grievous anxiety and grave financial loss. Again, when a mature man, in

1835, he enlisted the enthusiasm of the people of the South in a great railway system which should unite the Ohio River with the tide-waters of the Carolinas and Georgia. At a mass meeting of his fellow-townsmen he presented an elaborate report upon the subject, pointing out the commercial, social, and political advantages of such a road, and concluded with an eloquent appeal to the people of the different States to be benefited. Later, at Knoxville, Tennessee, he addressed a large meeting of those interested in the scheme, and was received with great encouragement.

The project failed, however, owing to the jealousy of Kentucky, which could not be persuaded to grant the road the necessary right of way.

As we should expect, however, the most important public activities of Drake were in connection with the charitable and educational foundations of Cincinnati. A mere enumeration of some of these must suffice. He was a promoter of the " Western Literary Institute and College of Professional Teachers." He gave a number of conspicuous addresses before this body, and Gross says of him, " The first time I ever heard him speak in public was at a meeting of the College in 1834, and I well remember how completely he enchained the vast audience."

In 1821 he brought about the establishment of the Commercial Hospital of Ohio, a foundation as old as the Massachusetts General in Boston, and he was one of its physicians through most of his life.

In 1827 he established the Cincinnati Eye Infirmary. It was extremely successful, and Drake, a member of the staff for a time, was famous in the region as a bold and skilful ophthalmic surgeon. Later, while living in Louisville, he was largely instrumental in founding there " The Kentucky School for the Instruction of the Blind."

Like his old friend and correspondent, John C. Warren, Drake became early in life an ardent temperance

advocate, and for many years pushed the crusade in his medical journal. Later, in 1841, he organized, at the Medical Institute of Louisville, a Physiological Temperance Society for the benefit of members of the Medical Class.

More conspicuous, however, than any of these and such other activities, was his constant warm-hearted, enthusiastic, active devotion to Cincinnati. Wherever he happened to live in his various wanderings, that sentiment was always with him. He had come to Cincinnati in his youth, when the place was a straggling village. He was the first medical student there, and the first Western medical graduate. There he had passed his most successful and most productive years. He had grown up with the place, and there was hardly a measure projected for its advancement, during more than forty years, in which Drake did not take a hand.

This devotion met the response it deserved, and, though Drake never held public office or took more than a literary part in the political questions of the day, there is no doubt that his fellow-citizens would have given him anything he might have asked of them.

Of course, he knew well all the public characters of his time. He was intimately associated with Henry Clay during some of the most important years of the latter's life; and his friendship for Benjamin Harrison was the natural result of comradeship in many good works.

One of his most interesting writings is a series of three letters on the slavery question to John C. Warren in 1850. He took much the same ground that Lincoln and other liberal men were then taking towards the negro. His purpose, however, was not so much political controversy, as it was to point out the actual facts of the slaves' condition; and few men had had larger opportunities for getting at those facts. He was well aware of the wide-spread misapprehension which existed in the North and East regarding slavery, and his purpose, moderately and cogently

expressed, was to correct the misrepresentations of the more fanatical abolitionists.

His letters were published, and for a time attracted much attention; but Mrs. Stowe's famous novel was soon after scattered over the land, and the decorous truths of the Warren letters were quickly drowned in the furor raised by "Uncle Tom's Cabin."

From what we have seen of his life, it is evident that he was a very broad man, and his catholicity of taste and habit is not the least interesting of his traits. In his old age he wrote a series of charming "Reminiscential Letters" to his children. The letters are what the title implies, and form a valuable addition to our knowledge of his times. Like most educated Americans of his generation, and especially of his profession, he was a religious man, and much of his more intimate writing is punctuated by expressions of such conviction.

His pen was never idle, his ambition never slept, and his force was unabated to the very last. In the vortex of change which has come over the world's life during the past fifty years, it is not altogether evident as yet what place history must assign to the man. The wild West which Drake knew in his youth is now part of the cultivated East, and the vast tracts of the Mississippi basin which he explored and of which he wrote have long been the commercial centre of the continent.

The books which he produced — those books which Gross said were to make him immortal—are buried under mountains of later tomes already antiquated. Of the schools which he founded and adorned, some are dead, and others have risen to a vigor from which he seems very far removed; but the name of the man himself has survived changes. It is still quoted with pride in the Ohio Valley, and one must fain believe that of all the able pioneers who spent their lives in the redemption of American Medicine few are to be placed higher than Daniel Drake.

CHAPTER XIV.

THE NINETEENTH CENTURY. ETHER, 1846.

You may see in the public garden of Boston a curious statue,—meaningless to him who runs,—a marble group of two men on a cluster of columns set in a pool of water. There is a venerable person with a patriarchal beard, who holds upon his knee the supine body of a youth. Said a child, gazing upon the figures, "That's Abraham, and he's going to kill little Isaac."

Now, that crude and inadequate monument which represents the legend of the good Samaritan commemorates a great fact in the world's history,—notable especially to Americans, and to surgeons most of all. If you have the curiosity to stop and read, you will see these inscriptions on the four faces of the pedestal:

"To commemorate the discovery that the inhaling of ether causes insensibility to pain, first proven to the world at the Massachusetts General Hospital in Boston, October, A.D. MDCCCXLVI."

"Neither shall there be any more pain."—REVELATION.

"This also cometh forth from the Lord of Hosts, which is wonderful in counsel and excellent in working."—ISAIAH.

"In gratitude for the relief of human suffering by the inhaling of ether, a citizen of Boston has erected this monument, A.D. MDCCCLXVII. The gift of Thomas Lee."

No other name adorns the work, because in 1867 men were still questioning to whom the great boon of anæsthesia rightly was due. The problem still vexes earnest souls betimes, and doubtless will continue so to do. Dozens of controversial volumes have been written on

the matter; hearts have been grievously torn in the dispute; men have died of it, upbraiding the ingratitude of men, and the pity and scandal of it all still weigh sadly upon science.

To one of another generation considering the records and the claims, thankfulness for the gift is drowned, almost, in regret at the quarrel, the jealousy, the sordid motives, the lack of dignity, the malingering, the poor human weakness of most of the leading actors in the scene.

The story has been many times told, and never told the same. Let us collect what we may from it all; set forth the truth as it seems to come to us; and gather from it this final consolation, at least, that the priceless boon was brought to our grandfathers, and through the agency of American men.

Two names only, in any way noteworthy, are heard in connection with the introduction of anæsthesia in surgery. The one, that of a shrewd, ambitious, commercial, New England dentist, W. T. G. Morton, much heralded in these and former days; the other, that of a simple, straightforward, modest country doctor in Georgia, Crawford W. Long. There were other claimants for the gratitude of mankind and the dollars of their compatriots, —Charles T. Jackson, Wells, Marcy.

We must remember that the thought of painless surgery did not burst upon the world *de novo* in the year 1846, when the first public demonstration of ether anæsthesia was given. Running through all medical history, there is a constant reference to the abolishing of pain, and even among the ancients many fairly successful attempts were made in that direction.

Poppy, henbane, mandragora, and hemp were used to deaden the pain of execution and surgery in remote antiquity. Herodotus tells us how the Scythians used a vapor of hempseed to cause drunkenness. That far-away

Chinaman, Hoa-tho, gave hashisch in A.D. 220, and performed painless amputations. Pliny, in the first century of our era, wrote that mandragora is "drunk before cuttings and puncturings, lest pain be felt." Dioscorides, Dodonæus, and Apuleius bear similar testimony. In the middle ages and later, Theodoric and Canappe described the anæsthesia produced by the *Spongia somnifera* boiled dry in strong narcotics, and moistened for inhalation.

In 1828 Girardin described before the Academy of Medicine a surgical anæsthesia induced by inhaled gas. Countless surgeons made their patients drunk before operating. Napoleon's Larrey found that intense cold produced partial insensibility; and mesmerism and hypnotism had their advocates.

In 1784 the Englishman James Moore diminished pain by clamping nerve-trunks running to the affected parts; and, most interesting of all, Humphry Davy, then a young practitioner at Clifton, England, discovered the intoxicating properties of nitrous oxide gas in 1799.

There are numerous other such experiences given in our literature. For instance, in 1818 Faraday wrote to the *Journal of Science and the Arts,* "When the vapor of ether mixed with common air is inhaled, it produces effects very similar to those of nitrous oxide. It is necessary to use caution in making experiments of this kind. By imprudent inspiration of ether a gentleman was thrown into a very lethargic state, which continued, with occasional periods of intermission, for more than thirty (!) hours, and a great depression of spirits; for many days the pulse was so much lowered that considerable fears were entertained for his life."

The amazing thing to us, reviewing such events, is that so many accidental discoveries and ascertained facts, through all previous time, led to no systematic study of the subject or well-sustained attempt to set an end to pain. Indeed, for many years before the time of Long,

Morton, and Wells, the scientific world knew something of the anæsthetic properties of "laughing gas" and ether, and made no use of them.

What was it, then, that caused the inertia? Surgical pain was real enough; there was no disguising it. The terror of operations was a very hell, even in anticipation; the fact itself no man has found words to describe. The shadow of it has lengthened even to our own day. Surgeons as well as patients dreaded the knife. Operations were very rare and a last resort. Two years before 1846 Robert Liston told his class that operating "is regarded as an inferior part of our professional duties; and, truly, it is so. The field of operative surgery, though happily narrowed, is still extensive."

Surgeons are surely the most merciful of men, yet we know that Celsus commends to them "pitilessness" as an essential trait. The lives of all great surgeons before the days of ether tell continually their dread of operating and their resort to all other conceivable measures. Ashhurst, in his delightful little essay on "Surgery before the Days of Anæsthesia," [1] relates how Sir James Simpson, shortly after beginning the study of medicine, was so affected by "seeing the terrible agony of a poor Highland woman under amputation of the breast" that he resolved to abandon a medical career and seek other occupation.

And looking for further record of those days of agony, Ashhurst tells of the most striking picture known to him, showing how an intelligent patient looked upon a surgical operation. It is in a letter written to Sir James Simpson by a friend, himself a member of the medical profession, who had had a limb amputated before the ether days: "I at once agreed to submit to the operation, but asked a week to prepare for it; not with the slightest expectation that

[1] Read at the Semicentennial of Anæsthesia, Massachusetts General Hospital, Boston, October 16, 1896.

the disease would take a favorable turn in the interval or that the anticipated horrors of the operation would become less appalling by reflection upon them, but simply because it was so probable that the operation would be followed by a fatal issue that I wished to prepare for death and what lies beyond it whilst my faculties were clear and my emotions comparatively undisturbed. . . . The morning of the operation arrived. The operation was a more tedious one than some which involve much greater mutilation. It involved cruel cutting through inflamed and morbidly sensitive parts, and could not be despatched by a few strokes of the knife. . . . Of the agony it occasioned I will say nothing. Suffering as great as I underwent cannot be expressed in words, and thus, fortunately, cannot be recalled. The particular pangs are now forgotten; but the blank whirlwind of emotion, the horror of great darkness, and the sense of desertion by God and man, bordering close upon despair, which swept through my mind and overwhelmed my heart, I can never forget, however gladly I would do so. Only the wish to save others some of my sufferings makes me deliberately recall and confess the anguish and humiliation of such a personal experience; nor can I find language more sober and familiar than that I have used to express feelings which, happily for us all, are too rare as matters of general experience to have shaped into household words. During the operation, in spite of the pain, my senses were preternaturally acute. . . . I watched all that the surgeon did with a fascinated intensity. I still recall with unwelcome vividness the spreading out of the instruments, the twisting of the tourniquet, the first incision, the fingering of the sawed bone, the sponge pressed on the flap, the tying of the blood-vessels, the stitching of the skin, and the bloody dismembered limb lying on the floor. These are not pleasant remembrances. For a long time they haunted me, and, though they cannot bring back the suf-

fering, they can occasion a suffering of their own, and be the cause of a disquiet which favors neither mental nor bodily health."

Such and such like were the conditions of surgery and the search after relief until near the middle of the nineteenth century; but looking back upon it all now, one sees that the end of those many generations of horror was drawing near. Just as the eighteenth century witnessed the political emancipation of the Western peoples, so the nineteenth century, with its intellectual emancipation and marvellous altruism, was to find an end for pain. Towards the middle of the century men were developing a new medicine, and anæsthesia was in sight.

We have heard that certain of the properties of ether had been familiar to chemists for many years. Nitrous oxide and ether were known to be stimulating and soothing. Their inhalation intoxicated and threw one into a sleep. It had been casually observed that blows and falls caused no pain when one was under the influence of the drugs. Among students and amateurs in science "ether frolics" were common during the second quarter of the century. Through such frolics and half-knowledge came the suggestion to one of our two ether claimants, Long, of Georgia,—knowledge not sought nor altogether obvious at the time. By his rival, Morton, of Boston, a man of another temper, diligently seeking the relief of pain, ether was truly discovered as by one after long search; and the manner of their findings was on this wise:

Crawford W. Long was a young doctor living in the village of Jefferson, Jackson County, Georgia, in the year 1842. He was twenty-seven years old, born in Danielsville, Georgia, on November 1, 1815. He had been graduated M.D. from the University of Pennsylvania in 1839, and had entered upon practice in Jefferson in 1841.

About that time the custom of "ether frolics" was common in the region, having been brought there by a wan-

dering lecturer. The story is that there was hardly a gathering of young people which did not end with an "ether frolic;" the girls and boys finishing the evening by inhaling ether,—some would laugh, some cry, some fight, and some dance.

Now, on one occasion, they had exhausted their own number, and, looking round for a further victim, caught a negro boy peeping through the door. They haled him in, and, while he fought and struggled, etherized him into insensibility. Then, when he lay quiet and unconscious, breathing heavily, they fell into a panic fright, and sent for Dr. Long. He soon reached the house where the boy was still unconscious, and his chief tormentor, the hero of the ether cone, was planning to flee the country. As we should now expect, the victim soon came to himself, none the worse for his mishandling.

In the following year, the lad who had looked upon himself for a short time as a murderer betook himself to the study of medicine, and entered Long's office as a student.

The two men—master and pupil—had not forgotten their experience with the negro boy, and, talking over the effects of ether, determined to try it in a suitable surgical case. Their first chance came on March 30, 1842, when a patient applied to Long for the removal of a small cystic tumor of the jaw. The operation was painless, and the patient, James M. Venables, was delighted with the performance. The ether was given on a folded towel, but the anæsthesia, from our present view-point, appears to have been incomplete.

Long does not seem to have pushed his researches far enough to determine the limit of safety of the drug or to have become convinced of its certainty. Many writers state that he gave up its use after a short trial, though his own brief and interesting essay on the subject does not bear out this assertion.

He failed, however, to appreciate the enormous importance of his discovery, and he did nothing for many years to inform a suffering world. In 1852, however, he read a paper on ether before the Georgia Medical Society, and in the *Southern Medical and Surgical Journal* of December, 1849, were quoted certificates of patients regarding his work. But he was a modest man, and never persistently pushed his claims; though they were admitted publicly,[2] in 1861, by Charles T. Jackson, of whom we shall hear presently. For many years all this was forgotten, until in 1877 J. Marion Sims again told the story of the man.

How justly Long might claim from posterity the credit of having discovered ether anæsthesia it is idle now to speculate; and whether, in the absence of a more energetic exploiter, he might in time have enlightened the world. Certain it is that, even with his four years' start of Morton, he was unheard of beyond his own neighborhood until many years after the latter's famous demonstration.

While Long was still experimenting with ether in a desultory way down in Georgia, an energetic set of men were finding other means of inducing anæsthesia in the town of Hartford, Connecticut. Their vehicle was nitrous oxide; and it was a wandering lecturer, G. S. Colton, who supplied the clew. In December, 1844, he gave a public exhibition of the gas, and a young dentist, Horace Wells, who was in the audience, was so impressed with the possibilities of the new medium that he had Colton administer it to him the next day, when a brother dentist extracted one of his teeth. As Colton tells the story, Wells exclaimed, on coming to himself, "It is the greatest discovery ever made: I did not feel it so much as the prick of a pin."

Wells began using the gas as an anæsthetic, and con-

[2] Boston Medical and Surgical Journal, April 11, 1861.

tinued to do so for many months. Looking about for some other similar drug, his attention was called to sulphuric ether; and one of his associates, a physician, E. E. Marcy, used the latter, at Wells's suggestion, in removing a wen of the scalp.

The use of ether was not persisted in then, however, as it was thought dangerous; but it was not abandoned until Wells had suggested its possibilities to Valentine Mott, who referred to it in an article in the *Boston Medical and Surgical Journal,* June 15, 1845,—probably the earliest American publication on the subject.

Soon after nitrous oxide had come into use at Hartford, Wells went on to Boston and secured an introduction to J. C. Warren, whom he persuaded to allow a demonstration of its properties in a dental case at the Massachusetts General Hospital.

Through some inadvertence, the patient did not receive enough of the gas, and howled with pain. Wells seems to have been a modest young fellow of unusual sensibility, so that the jeers of the students and the ridicule of their seniors discouraged him utterly for the time being. Profoundly depressed, he returned to Hartford, and soon afterwards departed for Europe on other business.

So much for preliminaries.

Now we come to the leading figure in this ether drama, William T. G. Morton. The personality of the man has been so befogged by eulogy on the one hand and by slander on the other, that it is not altogether easy to come to a clear understanding of him. His beginnings were commonplace enough.

The son of a country store-keeper and small farmer, he was born at Charlton, Worcester County, in Massachusetts, on August 19, 1819. After a brief common school training he became a clerk in his father's store. He was a magnetic, virile, persuasive man. From the outset he seems to have been pushing and ambitious to better him-

self, and would have studied medicine had his father been able to gratify him. When twenty-one years old, however, he was able to go to the Dental College of Baltimore, and, having a natural aptitude for mechanics, he graduated creditably in course. In 1842 he settled in Boston, and there formed a partnership with Horace Wells for the practice of dentistry. After an unprofitable year the two separated,—Wells going to Hartford and Morton remaining in Boston.

Before long his practice increased so satisfactorily that he found himself able to realize his early ambition, and began the study of medicine at the Harvard Medical School while continuing his dental work. He was never graduated from the Harvard School, however, as his demonstration of anæsthesia quickly followed to interfere with and break up his medical career.

As we have followed the development of medicine in this country and watched the struggle of our rare early men of science to elevate their calling, we have seen how their greatest obstacle was the commercial spirit which possessed the mass of the profession. Men entered upon a medical career for the sake of a living and money-getting. The art of medicine was their highest ambition; of the science they knew little, and for it they cared less. To this class in the community Morton belonged.

He was a shrewd fellow, with an eye to the main chance; and he early perceived that the greatest disadvantage under which the dentist labored was the inevitable pain which he must constantly cause his patients.

In those days the art of filling and preserving teeth was very crude indeed. As compared with the admirable work of our own time, little was done, and a large part of the dentist's occupation consisted in extracting teeth, treating the gums, and fitting plates. Owing, also, to the common dread of having teeth extracted, patients preferred having the plates soldered to the old fangs. To fasten the arti-

ficial teeth upon the plate necessitated the use of a gold solder softer than the metal plate, as a heat sufficient to dissolve a proper solder would have melted the plate beneath. This method set up a reaction between the metals in the solder and the gold plate, so that the solder changed color, and there resulted a black line about the base of each tooth. Now, Morton, in order to correct this offence, found a way to use a solder of the same material as the plate; but his further plan involved the removal of the old fangs,—a painful process, and to the relief of this he soon turned his attention.

Doubtless all these facts are dreary enough in the recital, but when we approach a great revolution in human life, it is well to inspect the causes, however trivial. So the ingenious dentist tried various methods to relieve pain. Opium and alcohol, commonly employed in surgery, he used, of course, but always with a feeling that they were clumsy and inefficient.

In one case he tried local applications of sulphuric ether and found that it benumbed the parts.

So far he had reached; and it is just here that we come to the burning question of precedence and the origin of the bitter controversy which rent the profession for more than a generation.

Where did Morton get his idea of the use of ether? Who first suggested it? Did he steal it from some one else? Did he come to his success through the teaching of another man, or did he himself evolve the procedure which we believe will number him with the immortals? It is a very real conundrum,—futile to most of us to-day, whatever it may have been to those sorely tried men of an earlier time. Such as it is, however, history demands that we search patiently in its muddy depths.

In 1844, the third year of Morton's practice in Boston, while he was preparing to matriculate at the Medical School, he had entered his name in the office of Dr.

Charles T. Jackson as a student of medicine, and with his young wife, whom he had recently married, he spent the summer months of the same year as a member of that gentleman's family.

Jackson was a man who needed no introduction to a Boston audience in his day. He was a scientist of national reputation and a distinguished chemist. To the popular mind he was a veritable wizard,—a discoverer of all sorts of things, a museum of scientific information. He had an unusual knowledge of electricity, among other things, and raised a doubt in many minds whether the discovery of the electric telegraph should not be credited to him rather than to Morse.

Withal, Jackson was a companionable, agreeable person, much sought after by students and others, popular and respected.

Morton, through his brief association with Wells and the latter's subsequent experiments with nitrous oxide, naturally became somewhat familiar with that drug as an anæsthetic agent, but came early to feel that it did not meet all requirements.

In July, 1844, a Miss Parrott, of Gloucester, Massachusetts, called on Morton to have a tooth filled; and, as she was extremely sensitive to pain, he tried the experiment of applying chloric ether locally to the gums. This he did on the suggestion of Jackson, who said he had used it as toothache drops when he practised medicine. In Miss Parrott's case the application of the drug seemed to be of service.

These two remedies for pain,—nitrous oxide and ether, —Morton kept in mind, and long debated their further use. Fortunately, for the solution of his problem, there came into his office in the spring of 1846, as dental student, Thomas R. Spear, Jr. Spear was immediately roused by the anæsthesia talk, and told his instructor how, frequently, as a school-boy at the Lexington Acad-

emy, he had amused and exhilarated himself by the inhalation of ether.

This seems to have been the final thing needed to rouse Morton's enthusiasm and stimulate his curiosity. He began etherizing animals, fish, dogs, and such, and became so convinced of the value of the drug that he waited only for a human subject. He went so far in his earnestness that in June of that year he secured the services of Grenville G. Hayden to look after his office practice, so that he might devote more time to his researches; and he explained his purposes to his attorney, Richard H. Dana, Jr., when that gentleman drew the partnership contract for him and Hayden.

This date, in the early part of that eventful summer, we are asked to note, as it bears upon the wrangle which ensued.

During the following months Morton pursued his inquiries in a quiet and secretive fashion, always fearful that some other investigator would anticipate him and snatch his laurels. He bought ether of Joseph Burnett, a well-known dealer in good drugs; he discussed the nature of ether with Theodore Metcalf, another reliable apothecary; he investigated inhaling apparatus with Joseph M. Wightman, a maker of chemical supplies, and, finally, on September 30, he betook himself again to his old preceptor, Jackson, to learn from him what further he might know of the properties of ether.

In this interview with Jackson, Morton concealed entirely his purposes, and presented himself as a novice seeking information.

His story was that he had a hysterical patient who needed to have teeth out. He asked Jackson to lend him some sort of inhaling bag, which he would use with pure air only, convincing the patient of anæsthesia through mental impression. Jackson laughed, and asked him why he did not try mesmerism or ether, which was perfectly

harmless. Said Morton, "And what is ether?" That is the key to Morton's attitude. One tries vainly to fancy Jenner asking, "*What is cowpox?*" or Röntgen puzzled by the mention of *Crookes's tubes.*

At any rate, Jackson was deceived. He explained to Morton the nature of ether and how to inhale it, illustrating with a dry, folded towel. "It won't do any harm," he said. "College- and school-boys often amuse themselves by breathing it, and I have tried it myself."

This was the final word Morton wanted. It was what he really was after. He went home and etherized himself into unconsciousness, reviving after a few minutes without ill effects. It was the test, like that on Long's negro boy in Georgia, and he was ready now to try it on a patient.

Almost at once the patient presented himself. That very evening a man by the name of Frost, a musician, and a stout, wholesome person, applied to him for the extraction of a painful tooth. He was frightened, and asked if mesmerism might not be tried. Morton told him that he had something better than mesmerism, and the man readily consented to its use. Promptly the patient seated himself. Morton held to his nostrils a towel saturated with ether; the patient became unconscious,—in what we now should call a state of *primary anæsthesia.* A deeply adherent bicuspid tooth was extracted, and the man quickly regained consciousness. He asked the street number of the house; he said he had never been so happy in his life, vowed he felt no pain, and joyfully gave Morton a certificate[3] of his experience.

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[3] This is to certify that I applied to Dr. Morton this evening at eight o'clock, suffering under the most violent toothache; that Dr. Morton took out his handkerchief, saturated it with a preparation of his, from which I breathed about half a minute, and then was lost in sleep. In an instant more I awoke and saw my tooth lying on the floor. I did not experience the slightest pain whatever. I

Of course, the performance was promptly advertised in the newspapers. A. G. Tenney, a reporter for the *Boston Journal,* had been a witness to the dentist's feat and recorded his observations.

The next day Morton went back to Jackson for more suggestions. He told him of his success with Frost, and asked him for a certified statement that ether might be inhaled with safety. Very naturally, Jackson, with his limited knowledge, refused to put his name to any such document. Furthermore, he told Morton that one successful etherization in private for a trivial operation would not convince the public of the value of the drug as an anæsthetic. He advised him to arrange for a public demonstration under the observation of competent witnesses.

Poor Wells's experience with nitrous oxide, of course, suggested the Massachusetts General Hospital, then the only hospital in Boston. It was the obvious place for the ether exhibition; but Morton dreaded premature publicity, —not, as in the case of Koch with tuberculin, because his researches were as yet incomplete, but because he feared his audience would recognize the characteristic smell of ether. He accepted Jackson's advice only after being shown how to disguise the odor of ether with eau de mille fleurs, the oil of Neroli, or some essence of that sort. Of course, Morton recognized the value of Jackson's urging, and a few days later proceeded to put his advice into effect.

John Collins Warren was still active in the affairs of the

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remained twenty minutes in his office afterwards and felt no unpleasant effects from the operation.—Eben H. Frost.

Boston, 42 Prince Street, September 30, 1846.

We witnessed the above operation, and the statement is in all respects correct. And, what is more, the man asked where his tooth was, or if it was out.

A. G. Tenney, *Journal Office.*
G. G. Hayden, *Surgeon Dentist.*

hospital, and, although now an old man, was distinctly the most conspicuous surgeon in New England, if not in America. To Warren, then, Morton betook himself and made known his wishes. The two men had had a slight acquaintance for a year or two, as was inevitable in so small a town as Boston then was; and Warren knew the young dentist for an ingenious and energetic practitioner of excellent standing.

The elder man, through a lifelong experience of misplaced enthusiasms and scientific bubbles, was naturally sceptical of Morton's claims; but he listened to him, was impressed by his story, and promised to give him a chance to use his new remedy on the first suitable surgical patient that presented himself at the hospital.

Hodges,[4] the narrator of these events, remarks that at no time in its history had the Massachusetts General Hospital been so prosperous as at the period now reached. New wings had recently been added, nearly trebling the capacity of the building, and the Staff had been enlarged. The visiting surgeons in 1846 were John Collins Warren, George Hayward, Solomon D. Townsend, Henry J. Bigelow, Jonathan Mason Warren, and Samuel Parkman; to all these it fell to witness Morton's first ether demonstration.

On October 13, 1846, a young man of twenty, Gilbert Abbott, a printer, tall and feeble, with a tubercular heredity, was brought to the amphitheatre of the hospital for operation on a " congenital but superficial, vascular tumor, just below the jaw, on the left side of the neck." He was under the care of J. C. Warren, and that surgeon, as he was about to begin the operation, was reminded of his recent conversation with Morton. Here was a suitable case for the experiment in painless surgery. He explained

[4] The Introduction of Surgical Anæsthesia, by Richard M. Hodges, M.D., Boston, 1891.

the situation to the patient, and the latter gladly consented to submit himself to the novel treatment. The operation was postponed three days, to Friday, October 16, and Morton agreed to be present with his mixture.

Meantime there was raised the question of method. Jackson, who was again consulted, suggested a form of inhaler consisting of a large glass flask, with a bent glass tube three feet long. This was modified by Wightman, who introduced a funnel face-piece, and valves to allow of the entrance of air.

At the appointed hour on the momentous 16th of October, Warren and his patient were ready in the hospital amphitheatre. The members of the Surgical Staff attended also, and the seats were filled by the class from the Medical School. Nothing was lacking to lend dignity and publicity to the enterprise but the presence of Morton himself, the central figure. He was unaccountably late.

Warren, who was the soul of punctuality and not accustomed to wait on the convenience of others, appears to have lost patience. After a delay of a quarter of an hour, he turned to his audience and said, "As Dr. Morton has not arrived, I presume he is otherwise engaged." The scepticism and the sneer were very obvious. He sat down by his disappointed patient, and was about to make the first incision, when Dr. Morton rushed into the room. He had been delayed by repairs upon his inhaler.

As yet the nature of the drug to be used was unknown even to Warren. One of Morton's friends had advised him to disclose his secret to the surgeon; but he did not do so, and is said to have stated later that he was given no time for such confidences. The consequence was that Warren did his work in ignorance of the agent at his command, and the responsibility for its employment rested mainly upon Morton.

Years afterwards Jacob Bigelow praised the courage

of the surgeon who encountered the unknown risks of an etherization. That is as may be. The fact remains that at the time Warren did his work he was as much in the dark as any of the curious spectators.

On coming to the operating table, Morton proceeded with his novel duties.

"Are you afraid?" he said to the patient. "No," was the reply. "I feel confident, and will do precisely as you tell me." Pointing to Frost, who had accompanied him, Morton said, "There is a man who has breathed it, and can testify to its success." Hodges says the spectators looked on incredulously, especially as the patient at first became exhilarated; but suddenly, when his unconsciousness was evident, there was a start of surprise.

Morton turned to Warren, and told him that his patient was ready. The surgeon immediately set to work. The operation was short and easy, and in the hands of the expert dissector was completed in five minutes. The patient lay quiet at first and gave no sign of sensation. The audience looked on in amazed silence. Towards the end the man began "to move his limbs and to utter extraordinary expressions, and these movements seemed to indicate the existence of pain; but after he had recovered his faculties, he said he had experienced none, but only a sensation like that of scraping the part with a blunt instrument." [5]

It is obvious now, of course, that the etherization was not pushed far enough. The limit of toleration was not yet known, and Morton had removed the inhaler after having induced unconsciousness; naturally, when allowed to breathe air, the patient rapidly recovered. As Warren stated two years later, the exhibition should be "placed in the class of cases of imperfect etherization."

The public demonstration had been made, however, and

[5] Surgical Records, Massachusetts General Hospital.

the facts were beyond any possible peradventure. While the half-stupefied patient lay on the table, Warren turned to his audience and said, "Gentlemen, this is no humbug."

In order that there might be no further question, a second demonstration was made the following day, in the case of a patient of Warren's colleague, Hayward. The operation was for a large, fatty tumor of the shoulder in a woman, and Morton on this second trial pushed the anæsthesia considerably farther. The experiment was a complete success. The operation occupied seven minutes, but from start to finish the woman lay in the relaxed attitude of profound sleep, and gave no indication of the slightest sensation.

Not long afterwards an amputation of the leg, with the patient under ether, was done by Hayward; and from then on the number and scope of these operations increased as the use and physiological properties of ether became better known and rules for its administration became established.

The next step in the exploitation of the great discovery was its announcement to the world. This was done, with Morton's consent, by Henry J. Bigelow, in an able and exhaustive paper read before the American Academy of Arts and Sciences on November 3, 1846, before the Boston Society for Medical Improvement on the 9th of the same month, and published in the *Boston Medical and Surgical Journal* on November 18.

Bigelow also took measures that the use of ether should be known in Europe. He wrote an account of it to Francis Boott, a well-known physician of London, and through him its value was soon communicated to the London hospitals, where it was taken up with enthusiasm.

Two years before this, the famous Liston had noted with satisfaction the limited field of operative surgery; but now, in December, 1846, after amputating a thigh

with the patient under ether anæsthesia, he burst out with, "Hurrah! Rejoice! An American dentist has used ether—inhalation of it—to destroy sensations in his operations, and the plan succeeded in the hands of Hayward, Warren, and others in Boston. In six months no operation will be performed without this previous preparation. Rejoice!"

Morton called his mixture "letheon." The name is said to have been suggested by his friend Gould, who with O. W. Holmes and H. J. Bigelow took a lively interest in pushing the new discovery. The terms *anæsthesia* and *anæsthetic* were suggested by Holmes.

So much for the famous discovery of ether, America's greatest contribution to medical science in the last century; probably the greatest contribution of any country and of any era; and one fain would know that the man to whom all living kind owes so much had quietly gone on his way rejoicing, satisfied with his good deed, his name a household word for all time.

No such kindly fate was his. He tried to turn his accomplishment into money; he became involved in lawsuits to defend his patent rights; he made an enemy of his best friend and adviser, and, except among physicians and students of the time, his very name has ceased to be spoken. It is a dreary theme and demands from us but scant notice, for has it not been told in volumes and settled to their own satisfaction by many men?

On November 12, 1846, Morton secured a fourteen years' patent for his use of ether, and on the advice of his attorney he joined with himself Charles T. Jackson in the undertaking. Jackson, as a presumably right-minded man, an eminent scientist, and a respected physician, refused at first to lend himself to the patent business, but was overpersuaded by his friends, and adopted the sophistry that letheon was no longer a "secret remedy," and did not come under the ban of good ethics.

Jackson at first proposed merely to charge Morton a fee for services. Then he consented to be joined with him in the letters patent; after they were issued he made an assignment of his interests to Morton in return for a bond, giving him ten per cent. of the proceeds on all sales. Later, he demanded twenty and twenty-five per cent., which Morton refused to pay, and with that the famous battle was joined.

To the curious who may be interested in this old question, that lively book entitled "Trials of a Public Benefactor" [6] will appeal. Much of the book is true. Some little of it is disingenuous; but it was indorsed by such eminent physicians as John Watson, Willard Parker, John W. Francis, Gurdon Buck, and Valentine Mott. In some sense it has become the classic of the ether controversy. It tells us practically all we know about Morton, whom it represents as a much injured martyr, and it paints Jackson as very black indeed.

Our best and final knowledge of the whole subject comes from the voluminous reports of Congressional committees appointed to investigate the matter. Then there is the impartial sketch of the "Discovery of Modern Anæsthesia," by Laird W. Nevins, of Chicago, and R. M. Hodges's admirable account, already mentioned.

That sulphuric ether, when inhaled, was capable of causing intoxication and even unconsciousness had long been known, but that it was safe and that it was certain remained to be demonstrated to the satisfaction of the scientific world; or, as Hodges puts it,—

1. The degree to which this insensibility could be carried.
2. The safety with which this could be done.
3. The uses to which this state could be put.

[6] Trials of a Public Benefactor, by Nathan P. Rice, M.D., New York, 1858.

We have already seen what part Jackson actually played in answering these three questions.

The first he had not answered at all, as he had had no experience.

The safety he had at first assumed; but later, when Morton had asked for a certificate of the safety of ether, he had refused it, on the proper grounds of lack of knowledge.

The answer to the third question lay beyond his jurisdiction, as he was no surgeon.

As a matter of fact, Jackson took no interest in Morton's work and the exhibition of ether until some weeks after the successful demonstrations at the Massachusetts General Hospital, and then only because he saw a way to make a little money, which at the time he is said to have greatly needed. He was not present at the hospital on the momentous October 16, and a few days later he went off to a mine in Maryland in which he was interested, and did not return until the middle of November. He took no part whatever in introducing ether to practice, and when Warren invited him to give the anæsthetic at the hospital for the first capital operation performed there, he declined to be present.

In spite of these well-known facts, when he fancied he saw that Morton was in a fair way to make a fortune out of his discovery, he began demanding money and perquisites from him; and when these requisitions failed, he went so far as to blackmail him, vilify him, and eventually to spread abroad slanders, for which he was arrested and threatened with a criminal suit.

Before it came to this he had taken every sort of underhand means to announce the discovery in Europe as his own; he had sent early information to the French Academy of Sciences, without so much as mentioning Morton's name, and had received from France the Cross of the Legion of Honor.

In 1851 Jackson prepared for von Humboldt a carefully matured statements of his claims. In this paper he told how he had, from his student days, been interested in the work of Humphry Davy in connection with anæsthetic agents; how he had experimented with protoxide of nitrogen and ether; how he had found the fumes of the latter to relieve him from the agony of inhaled chlorine gas, and even to cause unconsciousness,—that last in the winter of 1841-42; and that he had therefore drawn the following conclusions:

First. That pain ceased before unconsciousness was complete.

Second. That consciousness returned before pain returned.

Third. That insensibility continued long enough for any ordinary surgical operation to be performed while the patient was unconscious.

Fourth. That the vital functions were in no wise affected.

Jackson claimed to have discovered all this four years before Morton's public exposition.

The answer is furnished by an anecdote of Velpeau. When the subject of ether was first agitated before the French Academy, a person present rose and declared himself to have made the discovery several years before. Whereupon Velpeau exclaimed, "Sir, you did not make the discovery! Else why have you suffered thousands of the human race to undergo the tortures of surgery during these years, if it was in your power, by a word, to have relieved them?" [7]

The authorities of the Massachusetts General Hospital, trustees and surgeons, were unanimous in recognizing Morton as the true discoverer. The following is their contribution:

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[7] Boston Medical and Surgical Journal, June 30, 1847.

"Boston, May 12, 1848.

"Dear Sir:—

"At a meeting of the Board of Trustees of the Massachusetts General Hospital, a few weeks since, it was informally suggested that a limited subscription of one thousand dollars shall be raised for your benefit in acknowledgment of your services in the late ether discovery; no one to be asked to subscribe more than ten dollars. We consented to act as a committee to receive and apply the proceeds of this subscription. The proposed sum having been obtained, we have now the pleasure of transmitting it to you. We also enclose the subscription book in a casket which accompanies this note. Among its signatures you will find names of not a few of those most distinguished among us for worth and intelligence;[8] and it may be remarked that it is signed by every member of the Board of Trustees.

"You will, we are sure, highly value this *first* testimonial, slight as it is, of the gratitude of your fellow-citizens. That you may hereafter receive an adequate national reward is the sincere wish of your obedient servants,

"Samuel Frothingham.
"Thomas B. Curtis.

"To Dr. William T. G. Morton."

In glancing back over the various claims of those whose names are conspicuous in the anæsthesia controversy, we

[8] Among the well-known subscribers to this fund were Josiah Quincy, Jr., Abbott Lawrence, S. A. Eliot, Amos Lawrence, William Appleton, J. I. Bowditch, R. G. Shaw, Charles Amory, William Sturgis, John Bryant, J. A. Lowell, Thomas Dwight, Theodore Lyman, F. H. Bradlee, Robert Hooper, Charles Jackson, James Jackson, Marcus Morton, G. C. Shattuck, George Hayward, Thomas Lee, J. C. Warren, W. H. Prescott, Rufus Choate, William Ropes, C. F. Adams, Daniel Webster, John Homans, R. H. Dana, Augustus Thorndike, Russell Sturgis, H. H. Hunnewell, J. P. Higginson, and about thirty others.

see that the amiable Long never announced his discovery to a suffering world; that Wells failed to push his use of nitrous oxide and ether far enough to show their value; that the jealous and petulant Jackson made no practical application of his knowledge of ether,—a knowledge which he shared in common with chemists the world over,—and that he forced his claims only when he saw his former pupil's energy and courage likely to be rewarded by fame and fortune.

The verdict of those best qualified to judge assigned the credit of the ether discovery to Morton. Yet the man went unrewarded,—his life apparently a failure, his practice destroyed, his family scattered, ruined, and wretched, his health broken, and premature death, a happy release from a harassed and miserable existence.

It seems as though all this tribulation could be traced to the wretched patent and the endeavor to secure a fortune through a monopoly of what had been proven a prime necessity of life.

The patent failed almost at the outset. Morton died in poverty, and neither of these circumstances is creditable to our national probity and gratitude.

Briefly, the course of events was this.

Morton early revealed the nature of "letheon" to the Massachusetts General Hospital, and assigned to the Hospital and other charitable institutions the right to use ether. He tried to interest the Federal government in ether anæsthesia for military purposes, but was not listened to. In spite of this, and immediately afterwards, in the Mexican War, the army was provided with ether, and the surgeons used it extensively in the campaigns following. The government had infringed its own patent, and that was the end of the monopoly. Straightway every doctor in the land felt that he might appropriate the ether with impunity, and did so. Morton's licensees for the sale of "letheon" saw themselves ruined, and they turned

upon him for redress; he and they floundered through countless legal suits, where all parties were beggars together. Then Morton, with the backing of the Boston profession, petitioned Congress for redress.

The memorial, written by himself, was a brief statement of the leading facts in the case. It represented that while in the prosperous practice of the dental profession he "saw frequent instances of physical suffering, and was induced to consider whether there might not be some means of alleviating such suffering, and rendering operations less painful to those obliged to submit to them." That in pursuance of this object he had experimented upon himself, afterwards upon others, until success had crowned his efforts.

To this was added a brief narrative of his outlays and losses, with the conclusion that, "considering the nature of the discovery, the benefit which it confers, and must continue to confer so long as nature lasts, upon humanity; the price at which your petitioner effected it; in the serious injury to his business; the detriment to his health; the entire absence of any remuneration from the privileges under his patent; and that it is of direct benefit to the government by its use in the army and navy; you should grant him such relief as might seem to you sufficient to restore him at least to that position in which he was before he made known to the world a discovery which enables man to undergo, without the sense of pain, the severest physical trials to which human nature is subject."

The faithful dentist's admirable unvarnished statements and his practical demonstrations carried conviction to numerous committees of Congress.

Jackson fought him with all the weapons at his command, and was given careful hearings, but Morton carried the day. The committees made various recommendations in his favor, the most satisfactory advising a grant to

him of one hundred thousand dollars from the national treasury.

Unfortunately for Morton, these recommendations, extending over years, never came to anything, as the Congress could not be brought to act upon them.

Finally, in 1854, Morton became hopeless of Congressional action, and memorialized the President, praying him to grant him compensation for the use of the discovery of practical anæsthesia, or to issue the necessary orders to medical officers under national control to desist from further infringement of the patent right. The President received the application and was about to order a liberal compensation, when the Secretary of War, Jefferson Davis, induced him to require, as a prerequisite, a suit in one of the United States Courts and a judgment against a government surgeon for using ether without compensation to the patentee.

Accordingly, Morton brought an action against Charles A. Davis, of the Marine Hospital Service, and secured a judgment. Then came a change in administration, and the new Secretary of the Treasury refused to carry out the order until Morton had brought further test suits. Some time afterwards, therefore, he brought suit against the New York Eye Infirmary, when a decision, afterwards concurred in by the Supreme Court, was returned against him.

That was the end of his hopes. The story is a curious sermon in ethics. It was not Morton's discovery of the properties of ether—his announcement to the world—that ruined him. It was his attempt to establish a monopoly, and that stirred up the bitter rivalry which led to violation of its contracts by the government, involving him in endless petitions and lawsuits, and left him a broken-hearted man.

Those lawsuits gave rise to a final and crushing blow, administered by that large and influential body of his fel-

lows,[9] the American Medical Association. The year after the decision in the case of the New York Eye Infirmary, the Association[10] passed resolutions of scathing censure against Morton. To-day, in view of the circumstances under which he had brought his suit,—merely to make a test case, by direction of the government, and after years of waiting for what he believed his rights,—this action of the American Medical Association seems essentially unjust.

Morton did not live long after this. He had secured some rewards. He was invested by Russia with the Order of Saint Vladimir; by Sweden with the Order of Vasa. The French Academy divided the Montyon Prize of one thousand dollars between Jackson and himself.

He died prematurely of an apoplexy, in New York, on July 15, 1868, in his forty-ninth year.

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[9] He had received the honorary M.D. from Washington University, Baltimore, in 1849.

[10] By Dr. Noyes, of New York.—*Whereas,* In the appropriation bill now pending in Congress is a claim donating to Dr. W. T. G. Morton, of Boston, the sum of two hundred thousand dollars as a recognition of his services in introducing sulphuric ether as an anæsthetic agent; and

Whereas, The said Dr. Morton, by suits brought against charitable medical institutions for infringements of an alleged patent covering all anæsthetic agents, not claming sulphuric ether only, but the state of anæsthesia, however produced, as his invention, has by this act put himself beyond the pale of an honorable profession and of true laborers in the cause of science and humanity; therefore

Resolved, That the American Medical Association enter their protest against any appropriation to Dr. Morton, on the ground of his unworthy conduct, also because of his unwarrantable assumption of a patent right in anæsthesia, and further because private beneficence in Boston, New York, Philadelphia, and other places has already sufficiently rewarded him for any claim which he may justly urge.

Resolved, That a copy of these resolutions, if passed, be forwarded to the Chairman of the Committee on Ways and Means.

Dr. Mauran, of Rhode Island, moved the adoption of both resolutions, which were *carried.*

Vol. xv. page 53, Transactions of the American Medical Association.

It is a discouraging story, but time and history are at last placing the honor where it belongs,—with Morton, who for his errors most certainly was punished beyond his deserts.

We come to the end of the ether drama, to find it inadequate and disappointing. The stage is well set and the house full, but the actors fail in their parts, and the audience does not applaud.

It is all very different from those other medical mercies which the mills of God slowly have ground out for us. I suppose the underlying flaw in it all is that we cannot make of Morton an heroic figure. To satisfy the unities, there should have been a god descending out of the machine, bearing in his hands the great gift to suffering mortals. Surcease from pain should have been for all,—gladly bestowed, thankfully received. But, instead, we have the dollar put above the man, and man turning to demand his rights. The gift grudgingly offered. The recognition cold and forced.

No words as yet have told of the benefit to man. Many have tried to write or speak, but in terms inadequate. Oliver Wendell Holmes and Jacob Bigelow, both old men eloquent, have written down their thoughts.[11]

Splendid as was the conception of what anæsthesia might do for men, the harvest was many years in coming to fruition, because painless surgery was still dangerous surgery, and for a long time surgeons saw clearly the risks of operations, though for patients the terror was banished.

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[11] So long ago as 1847 Holmes said to his students, "Here almost within the present year, the unborrowed discovery first saw the light, which has compassed the whole earth before the sun could complete his circle in the zodiac. There are thousands who never heard of the American Revolution, who know not whether an American citizen has the color of a Carib or a Caucasian, to whom the name of Boston is familiar through this medical discovery. In this very hour while I am speaking how many human creatures are cheated of pangs which seemed inevitable as the common doom of mortality, and

Of course there was, even at first, some increase in the total number of operations: the inevitable capital operations were soon much more common and done with the patient's ready consent. More radical traumatic surgery, too, became frequent, as well as the use of ether in labor and as an aid in diagnosis. Pain was banished, but more than thirty years were to elapse before *asepsis,* the twin-fellow of anæsthesia, became recognized as the necessary corollary for the final perfecting of surgical advance.

Then, indeed, the art began to expand with those marvellous bounds at which the world still stands agape. Lacking ether, we should lack all; and with those two men so great in nineteenth-century medicine,—Pasteur, the French scientist, and Lister, the Scotch surgeon,—we must link Morton, the American dentist.

On October 16, 1896, fifty years after Morton's famous demonstration at the Massachusetts General Hospital, representatives of all the scientific world gathered in that institution and celebrated the "Semicentennial of Anæsthesia." Among them the name of Morton only was heard, and the words of the venerable sage, Jacob Bigelow,—words written thirty years ago,—were heartily seconded: "The suffering and now exempted world have not forgotten the poor dentist who, amid poverty, privation, and discouragement, matured and established the most beneficent discovery which has blessed humanity since the primeval days of Paradise."

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lulled by the strange magic of the enchanted goblet, held for a moment to their lips, into a repose which has something of ecstasy in its dreamy slumbers.

"The knife is searching for disease, the pulleys are dragging back dislocated limbs, nature herself is working out the primal curse which doomed the tenderest of her creatures to the sharpest of her trials, but the fierce extremity of suffering has been steeped in the waters of forgetfulness, and the deepest furrow in the knotted brow of agony has been smoothed forever."

CHAPTER XV.

THE NINETEENTH CENTURY. THE FOUNDING OF THE AMERICAN MEDICAL ASSOCIATION, 1847.

More than half a century ago, young doctors of the country, stimulated by the world-wide movement of scientific advance, and encouraged by the words and writings of such teachers as Hosack, Chapman, Drake, and Warren, resolved to come together to form a national organization for the uplifting of the profession. It was a great undertaking; full of difficulty, but full of promise. As a whole, we were in need of improvement. In somewhat exaggerated words, Chapman said of American doctors of the period, "The profession to which we belong, once venerated on account of its antiquity, its various and profound science, its elegant literature, its polite accomplishments, its virtues, has become corrupt and degenerate, to the forfeiture of its social position, and with it of the homage it formerly received spontaneously and universally. Do not suppose that I comprise the whole profession in this reprobation." The statement was wide of the mark, so far as there being a degeneracy was concerned. Affairs were bad enough, but they had never been any better, except to the jealous eye of a fond old man looking back upon his youth and the times before; they were generally bad, however, as compared with the *best* among ourselves and in Europe; and so the purpose rose to try to improve them.

That which troubled men mostly in those days was the state of medical education, a topic ever new and increasing in importance as the years pass. As the early historian [1]

[1] History of the American Medical Association by one of its members, New Jersey Medical Reporter, vol. vii., 1854.

of the movement says, during the fifteen years intervening between 1830 and 1845 the number of medical schools in this country more than doubled, leading to active rivalry, and a competition which aimed mostly at an increased number of students, and fees for the pockets of the teachers. The schools generally were private enterprises, at times avowedly business ventures, at times in the guise of departments of some established seat of learning; rarely endowed, and, by their very nature, little calculated to give their matriculants more than a smattering of the science and art of medicine. There was no uniform requirement for the degree and no preliminary requirement whatever for matriculation. Sixteen weeks were very generally adopted as the length of the college term, and often it was thirteen. In New England and Philadelphia the inadequacy of this training had agitated men, and in 1835 the Faculty of the Medical College of Georgia actually had made a formal proposal for the holding of a convention of delegates from all the medical colleges of the country. The proposition met with the fate of most propositions coming from obscure sources. Many of the small colleges thought well of it, but the old establishments ignored it, and it fell to the ground. The plan deserved a better fate, and the curious fact about it is that it came from one of those very institutions about which men were complaining. There must have been wise and honest teachers in that Georgia College.

The movement would not be suppressed. Since the self-satisfied older colleges would not bestir themselves, and the young colleges could not act alone, it remained to be seen what those medical bodies, other than the colleges, could do. Those other bodies were the various societies in the States, counties, and towns.

The first of them to take action was the Medical Society of the State of New York, at its annual session in February, 1839. Men kept talking of the existing un-

satisfactory state of affairs and declaring that it was unwise for those who did the teaching to be allowed to confer the degree. As the conferring of the degree carried with it, at that time, the license to practise, the danger of abuse was more apparent than it is at present, when the degree carries with it no such license.[2]

As a result of this feeling, the Society passed by a large majority a resolution affirming that the business of teaching should be separated as far as possible from the privilege of granting diplomas.

Consequently, John McCall, of Utica, offered the following preamble and resolution:

"WHEREAS, A National Medical Convention would advance, in the apprehension of this Society, the cause of the medical profession throughout our land, in thus affording an interchange of views and sentiments on the most interesting of all subjects,—that involving men's health, and the means of securing or recovering the same; therefore,

"*Resolved,* That in our opinion such convention is deemed advisable and important; and we would hence recommend that it be held in the year 1840, on the first Tuesday in May of that year, in the city of Philadelphia; and that it consist of three delegates from each State Medical Society, and from each regularly constituted Medical School in the United States, and that the president and secretary of this Society be, and they are hereby, instructed and required to transmit as soon as may be a circular to that effect to each State Medical Society and Medical School in said United States."

That was a good stirring resolution. It was carried, and the steps were taken to effect its purposes; but it

[2] Our State Boards now grant the license to practise after the candidate has passed a State examination; and a medical school diploma is a prerequisite to taking such examination; formerly, there were no State Boards.

seems not to have been timely. At any rate, those invited did not respond, and the scheme fell through.

The thoughts embodied in the resolution did not lie fallow, however. All over the country the discussion of the problem and the question of medical education, and of the unwisdom of the teachers granting the diplomas, went on. So the talk continued for five years longer, when, in 1844, the New York Society again bestirred itself in the matter. The question was brought to a focus by two series of resolutions, the one offered by Alexander Thompson, of Cayuga County, the other by N. S. Davis, a new delegate from Broome County.

The resolutions stated that a *four* months' term of schooling was altogether too short, and that combining the teaching and licensing powers in the same body of men was impolitic and liable to abuse. As a result of discussion, the resolutions were referred to a committee, of which Davis was made chairman. Then followed a year of active correspondence and hard work, when again, in February, 1845, two reports were presented by the Committee to the Society,—one from Davis, the chairman, endorsing the proposition of the year before, the other taking a different view of the subject. The arguments of the reformers in the resulting debate were the same as those already given. In opposition, it was urged that, though existing conditions in New York State were unsatisfactory, the same was true of the other States, and that a high standard of education established in New York would result merely in driving students out of the State and in ruining the schools.

Upon the close of this debate, while the subject still hung fire and was about to be postponed, it was suggested to Davis that the matter might be arranged by calling a convention of delegates from all the colleges in the country and inducing them to act in concert. He was fired by the idea, and, unaware that any similar attempt

had previously been made, rose and offered this preamble with resolution:

"WHEREAS, It is believed that a National Convention would be conducive to the elevation of the standard of medical education in the United States; and whereas there is no mode of accomplishing so desirable an object without concert of action on the part of the medical colleges, societies, and institutions of all the States, therefore,

"*Resolved*, That the New York State Medical Society earnestly recommend a National Convention of delegates from medical societies and colleges in the whole Union, to convene in the city of New York, on the first Tuesday in May in the year 1846, for the purpose of adopting some concerted action on the subject set forth in the foregoing preamble.

"*Resolved*, That a committee of three be appointed to carry the foregoing resolution into effect."

Such was Davis's motion. It marks the inception of that great organization, "The American Medical Association;" and it brings into the field of history, clearly and for the first time, a distinguished man,—a man who is living at this writing, and is known to us in his venerable age as "The Father of the American Medical Association." Of such a man we should hear some few words.

Nathan Smith Davis was born on January 9, 1817, at Greene, New York, a little town in Chenango County, some fifty miles south of Syracuse. The region had been opened to settlers, mostly from Connecticut, about twenty years before, and was still a crude frontier community. There were schools there, as there were wherever our ancestors moved forward,—good schools, too, many of them,—and Davis found his early education there and at the neighboring academy in Cazenovia. Then he went for his medical education to Fairfield, the college of the Western District of the "Physicians and Surgeons." It

was there that we shall see Theodoric Romeyn Beck at work. Davis was graduated thence a Doctor of Medicine in January, 1837, at the age of twenty.

Immediately on his graduation he settled in practice at the village of Vienna, a few miles west of Utica, New York; but after some months he resolved to seek a larger field, and removed to the town of Binghamton, in what is called the southern tier, not far from the Pennsylvanian border. Binghamton is in Broome County, and it was in 1844, when he had been seven years in practice and was but twenty-seven years old, that Davis was sent as a delegate from his county to the State Medical Convention where we met him.

His subsequent career must be briefly traced, and we shall hear but little more of him in connection with the American Medical Association.

After ten years of active and successful practice in Binghamton, he resolved to enter upon a city practice. In 1847 he went to New York, where he remained a couple of years, and then in 1849 settled finally in Chicago, the scene of all his subsequent labors. The immediate cause of his Western migration was to fill a professorship in the Rush Medical College, then but five years established.

Of Davis's life during the past half-century it is not yet time to speak more than in outline. He has been a constant advocate of improving medical education, and, as the founder of the Chicago Medical College in 1860, was a pioneer in lengthening the medical course. In numerous other good works for the profession he has had a part. He was Secretary-General and, later, President of the International Medical Congress in 1887; a founder of the Illinois Medical Society, the Chicago Academy of Sciences, the Chicago Historical Society, and kindred enterprises. He has been a frequent and valuable contributor to medical literature; producing among many other good works an essay on the "Physiology of the Nervous

System" (1841); "History of Medical Education in the United States" (1851); "Practice of Medicine and Clinical Lectures." In New York he was editor of the *Annalist;* in Chicago he edited the *Chicago Medical Journal* and founded the *Chicago Medical Examiner.* For six years he edited the *Journal of the American Medical Association.* And always since its founding he has been the earnest supporter and faithful, devoted servant of the Association to which he gave that initial impulse in 1845.

Truly it has been a remarkable and useful life.

That resolution of Davis, at the New York State meeting of 1845, calling for a National Convention, did not receive a very enthusiastic reception. The older members recalled the previous failure, and to most the scheme seemed Utopian and impracticable. Still, it appeared that no harm could come of the project, so the mover of the resolutions was humored, his plan adopted, and himself named chairman of a committee of three to carry it into effect.

The following year was a busy one for the committee, in corresponding with numerous Schools and Societies throughout the country. Somewhat to the surprise of the enthusiastic Davis, the replies to his letters were favorable for the most part; and the great majority of the organizations addressed agreed to send delegates to the Convention. To his chagrin, however, three of the oldest and strongest Schools in the country civilly declined to have any part in the movement,—the Pennsylvania and Jefferson Schools of Philadelphia and the Harvard School of Boston. Their reasons seem to have been short-sighted, due to an attitude of self-satisfaction and a not unreasonable fear of committing themselves with a body of men of whose purposes they were suspicious,—groundless fears, from which their conservatism recovered in a year or two.

The names of the prominent men who favored the plan

promised a good measure of success, however; and, besides individual indorsers, delegates were pledged from Medical Societies and Colleges in Maine, New Hampshire, Connecticut, New Jersey, Delaware, the District of Columbia, South Carolina, Georgia, Mississippi, Louisiana, Tennessee, Kentucky, Ohio, Indiana, and New York. The proposed Convention was warmly favored also by nearly every medical journal in the country.

So encouraging a showing stimulated the New York State Society to go on with the undertaking. Sixteen delegates were therefore appointed by it to attend the Convention, and an invitation from the faculty of the New York University to make use of a hall in their building was accepted.

In the mass of journal articles (which appeared during the winter of 1845-46) concerning the matter, the *New York Journal of Medicine and the Collateral Sciences* published several communications from Davis, and one from L. Tucker, at that time President of the Connecticut State Society. The latter definitely suggested for the first time that the proposed Convention should be organized on a permanent basis as a National Medical Society. C. A. Lee, the editor of the *Journal,* strongly supported this proposition. Davis's articles on the subject were at times almost indiscreetly vigorous in their urging. He criticised severely the existing state of medical education, and urged especially the raising of the standard of preliminary training; the importance of attaching more weight to the quality of private teaching given by practising physicians to their apprentices; a higher and more uniform standard of requirements for the degree, and the devising of some means to stimulate the ambition of the whole profession for the proper and continued study of science. He then proceeded to urge, as the necessary means for these ends, "a permanent National Society, by whose annual discussions an exciting, vivifying, and

healthful influence shall be exerted over the length and breadth of the country, until a correct and noble sentiment is engendered in the bosom of every member of the profession."

All this talk was good and wholesome, and true in the main; but it stirred up enemies, who attacked the scheme as a whole and bitterly assailed the author thereof. The most conspicuous and aggressive champion of this opposition was Martyn Paine, a professor in that very New York School which had offered its hall for the Convention. Paine's attack took form in a valedictory address to his class in March, 1846, some two months before the date set for the meeting. He called his address "A Defence of the Medical Profession in the United States." It was printed and widely distributed by its author, and is an excellent example of what to leave unsaid in medico-political discussions. Indeed, no better evidence is needed to illustrate the low esteem in which conspicuous educators of the day held the subject of medical ethics.

The leading thought in Paine's thesis was based on the assumption that the active members of the New York State Society, and Davis, the chairman of their Committee, in particular, had been slandering and defaming the profession to which they belonged. Here is a paragraph which illustrates admirably the animus of the man:

"It is not the man who has officially promulgated the views of the State Medical Society, nor the journals through which the contumelious representation of the profession is circulated, that should be held responsible. We must rather go to the fountain-head from which the purpose emanates, and with acids and caustics try its purity. We must go to the State Medical Society itself, interrogate the *general character of those* who annually convene at Albany during the *very opportune* session of the Legislature, and inquire how far and in what ways they contribute to the dignity of the profession and advance the inter-

ests of medical science. Nor would I invite an investigation of this nature were those members of the State Medical Society who annually convene at Albany, and do *the mining operations,* more than a bare handful of the *outs,* and were they not so erroneously supposed to represent the voice of the profession. . . . And now, perhaps, we shall have no difficulty in understanding why it is so earnestly desired to extend the term of instruction in our Medical Colleges, and also as a preliminary requisite to admission into these institutions. There is an *aristocratic* feature in this movement of the worst omen, however the spirit by which it is prompted may belong to the agrarian policy. It is oppression towards the poor, for the sake of crippling the Medical Colleges."

The writing of such stuff brought the fate it deserved, and incidentally served to illuminate the spirit which even the greater Schools held towards each other. The Pennsylvania and Jefferson Schools promptly repudiated the sentiments of Paine's circular; and Hewson, of Philadelphia, wrote to the committee of arrangements stating that they had hitherto declined joining the new movement because the Convention had been called to meet in New York, and Philadelphians had concluded that this was a scheme to exploit the New York University School. Now they were undeceived and would come in.

But the New York faculty itself was influenced by such talk as Paine's, and, though the Convention delegates were to meet as its guests, the teaching body industriously opposed the purposes of the gathering. However, the invitations had gone out and the day was set. From all parts of the country men were journeying to the reception of their ungracious hosts, and on Tuesday, May 5, 1846, they met, to the number of about one hundred, in the hall of the Medical Department of the New York University.

That meeting was by no means inharmonious. Medical

representatives were present from the various places which had promised representatives, and there was general rejoicing among those who had travelled from distant and lonesome parts that at last their isolation was to be broken and their path made more smooth. The occasion was one of kindly fraternizing and diligent interchange of views. They promptly proceeded to organize, and elected unanimously a number of excellent representative officers: President, the veteran Jonathan Knight, of New Haven, that friend and colleague of Nathan Smith; Vice-Presidents, John Bell, of Philadelphia, and Edward Delafield, of New York; Secretaries, Richard D. Arnold, of Savannah, and Alfred Stillé, of Philadelphia.

So far all was very smooth and pleasant. The new officers were conducted to their chairs, and the business of the meeting was about to be resumed, when a loud, discordant note unexpectedly was sounded from the irreconcilable faculty of the New York University. Gunning S. Bedford was the mouthpiece of these gentlemen; he was a colleague of Paine and a delegate from the University; but for a practical American he showed himself remarkably unskilled in political manipulations. He rose in his place in the Convention, and, after some blameless remarks on the value of such gatherings, moved this preamble and resolution:

"WHEREAS, The call of the State Medical Society of New York for a National Medical Convention, to be held in the City of New York on the first Tuesday in May, has failed in a representation from one-half of the United States, and from a majority of the Medical Colleges; and *whereas,* the State Medical Society has emphatically stated that there is no mode of accomplishing the object of the Convention without concert of action on the part of Medical Societies, Colleges, and Institutions of *all* the States, therefore,

"*Resolved,* That this Convention adjourn *sine die.*"

The proposition was promptly seconded by Bedford's colleague, G. S. Pattison.

That was the one dramatic situation of the occasion. It is hard to see how any intelligent man could seriously have presented so fatuous a proposition. The insolence of the preamble was equalled only by the tactlessness of the resolution itself. It was a cruel slap in the face to the crowd of eager, generous men who, at great sacrifice of precious time and effort, had gathered there. Moreover, if Bedford had seriously expected to carry his audience with him, he went about his business in an ignorant fashion. He had done no canvassing; he appears to have known nothing of the sentiments and wishes of his hearers, but thought, apparently, that his mere *ipse dixit,* coming as the voice of the New York faculty, would end the matter.

For two or three minutes the delegates were surprised into silence; then, without debate, there was a general cry of *question,* which was put and resulted in *nays,* seventy-four; *yeas,* two,—Bedford and Pattison.

Promptly the Convention was in a furor. The delegates were righteously indignant, and, after speaking their minds to the gentlemen of the minority, were about to withdraw from that inhospitable roof, when Bedford and Pattison recovered themselves and made abject explanations and apologies, with the result that the subject was laid on the table. One great point had been gained by this episode. It had served suddenly to crystallize sentiment and to rouse enthusiasm, as was shown soon afterwards when the subject of making the Convention permanent was discussed.

Harmony having been restored, members got to work at the business for which especially they had been summoned. A committee of nine was appointed to formulate suggestions regarding the subject of medical education. They straightway agreed upon these four propositions:

First. That it is expedient for the medical profession of the United States to institute a *National Medical Association.*

Second. That it is desirable that a uniform elevated standard of requirements for the degree of M.D. should be adopted by all the Medical Schools in the United States.

Third. That it is desirable that young men being received as students of medicine should have acquired a suitable preliminary education.

Fourth. That it is expedient that the medical profession in the United States should be governed by the same code of medical ethics.

After the lapse of fifty-seven years, it is interesting to observe that of these four propositions, on which the committee quickly agreed without dissent, but two—the first and the third—have commended themselves in practical form to the profession to-day.

At that time, however, the four propositions were referred to appropriate committees, with directions to report at the next annual meeting, to be held in Philadelphia. Arrangements were also made for the more clearly setting forth to the profession of the country the need and purposes of a National Association; besides, on the urging of Davis, there was appointed a committee to consider and report upon the vexed question of continuing the teaching and licensing in the hands of the same men. With that they adjourned to meet again the following year.

The success of that first New York Convention assured the success of the National Association. To forward the plan, an excellent representative committee had been appointed,—John Watson, John Stearns, F. Campbell Stewart, and N. S. Davis, of New York, Alfred Stillé, of Philadelphia, W. H. Cogswell, of New London, and E. D. Fenner, of New Orleans. They were aided in propa-

gating the faith by the persuasive pens of John W. Francis, Samuel Jackson, S. H. Dickson, and various others, while the voices of the discontented had ceased even to growl in obscurity.

The year passed agreeably and profitably in such pursuits, and on May 5, 1847, the delegates appointed by the Societies, Colleges, and other medical bodies throughout the country again met, this time in the hall of the Academy of Natural Sciences, in Philadelphia; and again organized with Knight as President and Stillé and Stewart as Secretaries.

This time the gathering was much more representative than the year before. Two hundred and fifty delegates were present from forty Medical Societies and twenty-eight Schools, in twenty-two States and the District of Columbia.

The most important work of this Convention, indeed the work on which hung the success of any purposes it might have in view, was the perfecting of a permanent National Association. For some reason, this important step was not taken until towards the end of the meeting; but at last that question was reached and Watson's committee of seven made its report. For the organization of such an Association, two methods were possible. The first, a Convention or Congress on a basis of representation, the various interested Societies and Schools federating themselves and sending delegates, chosen according to a fixed ratio, to the Convention. The second method of organizing, and a much less democratic one, was to make the Convention self-perpetuating, by itself electing members into its own body. The second, or undemocratic, method was proposed by Isaac Hays, of Philadelphia, and after much discussion was voted down. Then the representation scheme proposed by Watson's committee was taken up and adopted. The report carried with it a Constitution for the Association. In the pream-

ble attached to the Constitution the purposes of the Association were declared to be "for cultivating and advancing medical knowledge; for elevating the standard of medical education; for promoting the usefulness, honor, and interests of the medical profession; for enlightening and directing public opinion in regard to the duties, responsibilities, and requirements of medical men; for exciting and encouraging emulation and concert of action in the profession, and for facilitating and fostering friendly intercourse between those engaged in it."

Inducements were held out for the forming of State and County Medical Societies, and committees were suggested to have in charge the discussion of the various branches of medical science.

The student of our medical politics will recognize in the two schemes referred to the Convention the germs of two distinct national organizations, both of which were destined to come into very active and important being. The American Medical Association was born at once through the adoption of Watson's report, and has continued ever since a course of widening importance and usefulness. Three years ago the Constitution was revised, and the representation placed at a greatly higher ratio, so as to accommodate itself to the expanded country and the larger number of affiliated Societies. The plan of Hays, after lying fallow for a time, was revived in the next generation, with the resulting formation of those organizations known collectively to us as the Congress of American Physicians and Surgeons; and we are wont to believe that for both associations there is abundant and proper scope.

At that Philadelphia meeting of 1847 there were various other topics discussed before the final vote came on the question of a National Association.

John H. Griscom, of New York, made a report from

his committee, which had been appointed to consider the subject of procuring from the State governments uniform and efficient laws for the registration of births, marriages, and deaths; and to propose also a general nomenclature of diseases. This report was adopted, and is to be found *in extenso* in the first volume of the Association's Transactions.

James Couper, of Delaware, made a report on "Preliminary Education." His paper embraced resolutions affirming the advantages of a knowledge of the natural sciences and the classics; recommending physicians to ask from their pupils a higher standard in such studies, and to give a certificate which should mean something not merely perfunctory; Medical Colleges were urged to require some such certificate before matriculating students.

This was all very moderate indeed, but, such as it was, it was passed only after much opposition.

R. W. Haxall, of Virginia, reported on requirements for the degree. His recommendations are mild and are recommendations only, but show that the profession had distinctly advanced its ideas in the years since Morgan and Rush were teaching. The resolutions were adopted in the following form, and are worth reading:

"*Resolved,* First, that it be recommended to all the Colleges to lengthen the period employed in lecturing from four to *six* months.

"Second, That no student shall become a candidate for the degree of M.D. unless he shall have devoted *three* entire years to the study of medicine, including the time allotted to attendance on the lectures.

"Third, That the candidate shall have attended two full courses of lectures; that he shall be twenty-one years of age, and in all cases shall produce the certificate of his preceptor, to prove when he commenced his studies.

" Fourth, That the certificate of no preceptor shall be received who is avowedly and notoriously an irregular practitioner, whether he shall possess the degree of M.D. or not.

" Fifth, That the several branches of medical education already named in this report (viz., Theory and Practice of Medicine, Principles and Practice of Surgery, General and Special Anatomy, Midwifery, and Diseases of Women and Children, Chemistry and Medical Jurisprudence) be taught in all the Colleges, and that the number of professors be increased to seven.

" Sixth, That it is required of candidates that they shall have steadily devoted three months to dissection.

" Seventh, That it is incumbent upon preceptors to avail themselves of every opportunity to impart clinical instruction to their pupils, and upon Medical Colleges to require candidates for graduation to show that they have attended on *hospital* practice for one session, whenever it can be accomplished, for the advancement of the same end.

" Eighth, That it be suggested to the Faculties of the various Medical Institutions of the country to adopt some efficient means for ascertaining that their students are actually in attendance on their lectures.

" Ninth, That it is incumbent on all Schools and Colleges granting diplomas fully to carry out the above requisitions.

" Tenth, That it is considered the duty of preceptors to advise their students to attend only such institutions as shall rigidly adhere to the recommendations herein contained."

These resolutions were adopted by large majorities; indeed, the only clause to which serious objection was made was that first one extending the term to *six* months. It was feared that students could not be held for so long a time; even so, the clause was adopted.

The recommendations were accepted as the views of the Association, but it was long before they were widely applied in the Schools. The framers thereof were wise men with a long lookout ahead. It is only in our own generation that we have seen their plan followed and expanded.

A report on Medical Ethics by Bell and Hays was adopted. The report which elicited most discussion, and was finally referred to the Committee on Medical Education of the American Medical Association, was that dealing with the question of the *licensing* and *teaching* being in the same hands. All the men who had looked into the matter agreed that the existing system was liable to great abuse, and, though they suggested certain specific remedies, nothing definite was accomplished.

It will be seen that the result of all this talk and these resolutions and suggestions was in the line of increasing the dignity of the profession by raising its standards and efficiency. Such was the object for which primarily the Association was formed.

We have seen, also, how the last work of the Convention was to resolve itself into the American Medical Association. The members then proceeded to elect officers, and agreed to meet thereafter annually on the first Tuesday in May.

The first officers of the Association were: President, Nathaniel Chapman, of Pennsylvania; Vice-Presidents, Jonathan Knight, of Connecticut, Alexander H. Stevens, of New York, James Moultrie, of South Carolina, and A. H. Buchanan, of Tennessee; Secretaries, Alfred Stillé, of Pennsylvania, and J. R. W. Dunbar, of Maryland; Treasurer, Isaac Hays, of Pennsylvania.

We shall not follow the fortunes of the Association through the years. We are concerned only with its founding. The dissensions which early existed were soon healed. The Philadelphia malcontents came in in 1846,

and in the first year of the Association's life Boston men joined. Holmes and Bowditch were conspicuous, and John Collins Warren was the third president.

The first fifty years were not always years of smooth sailing; but with the beginning of its second half-century the Association has taken on renewed vigor. In its membership, its activity, and its broad democratic spirit, it is promising to meet the fondest hopes of its wise and strenuous founders.

CHAPTER XVI.

THE NINETEENTH CENTURY. NOTABLE NAMES OF FIFTY YEARS.

It is not the purpose of this narrative, as, indeed, it is scarcely within the bounds of reason, to discuss at length the names and deeds of all the men who added to the distinction of American Medicine during the first half of the nineteenth century. Something, and in halting fashion, we have already considered of some of the best of them, and that, too, at the risk of making invidious distinctions.

If this were a ten-volume history, it would be proper to enter upon a great number of other themes connected with our art,—of the establishment and growth of schools, of medical journalism, of medical legislation and jurisprudence, of medical libraries, of medical heresies, and of other topics which naturally suggest themselves to the inquiring mind. Such matters must be passed over by this writer for the present, at any rate; but it seems proper in a concluding chapter to glance hastily over the names of some of the men who are still familiar to us, and to place those men, by a brief paragraph or two, in the positions to which history seems to be assigning them. Indeed, this has already been done by the able quintette of writers who contributed to "A Century of American Medicine." [1]

But since their publishing in 1876, more than a quarter of a century has elapsed, and already a truer perspective is ours than what they saw.

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[1] Edward H. Clark, Boston; Henry J. Bigelow, Boston; Samuel D. Gross, Philadelphia; T. Gaillard Thomas, New York, and J. S. Billings, Washington.

In point of time the earliest memorable man, as yet unnamed in these pages, was Felix Pascalis Ouviere, commonly known under the name of Pascalis. He was a Frenchman, born in Provence about 1750, and a graduate of Montpellier. He went to St. Domingo, where he practised until driven out by the Revolution of 1793. Then he came to America and lived in both Philadelphia and New York at various times. So we find him associating with such of our friends as Rush, Physick, Hosack, and Francis, and known for his contributions to the literature of yellow fever. He was an editor, with Miller, Smith, and Mitchell, of the *Medical Repository,* and, among other interesting papers, contributed one on syphilis, which was published in New York in 1812. Pascalis died, an old man, in that city in 1833.

Wistar is a name famous in Philadelphia for more than a century, and Caspar Wistar, the anatomist, was born there, of German descent, on September 13, 1761. He was one of the men who made the old Pennsylvania School a hundred years ago. Caspar Morris, his biographer, says of him that, both as a cultivator of the science and a practitioner of the art of medicine, Caspar Wistar deserves a place in the highest rank of American worthies.

Wistar dates far enough back to have been, like Rush, a pupil of the famous John Redman. He was graduated Bachelor of Medicine in Philadelphia in 1782, twenty-one years of age,—older than most of the young graduates of the time; then he went on with his studies in Edinburgh, where he secured the doctor's degree in 1786. On leaving Edinburgh he returned at once to Philadelphia, and was made Adjunct Professor of Anatomy in 1791; William Shippen, Jr., continuing to hold the Professor's chair. Wistar taught anatomy until his death in 1818. During those twenty-seven years he became a very distinguished personage in the American profession, and seems to have attracted students almost as strongly as did Rush in his

prime. The work for which he is best known is his "System of Anatomy," issued in parts from 1811 to 1814. For many years it was a standard popular text-book for students and teachers.

One of the most distinguished and useful of our early American surgeons was John Beale Davidge, of Maryland. He was born in Annapolis in 1769, and died in Baltimore in 1829.

His life was devoted mainly to operative surgery and to teaching, and he is chiefly famous as one of the founders of the University of Maryland, where he held for many years the chair of Anatomy and Surgery. As a writer, too, he became well known, for his style was lucid and convincing and his themes well chosen. Though the author of no great work, he was a fairly constant contributor to medical journalism, and some six years before his death established a publication, now but little known, *The Baltimore Philosophical Journal and Review*. Unhappily, but one number was published, as the enterprise could not secure proper support.

Another Philadelphian, famous in his day and a colleague of Rush and Wistar, though much younger than either, was John Redman Coxe, who bore the name of a distinguished physician. Coxe was born in 1773, in Colonial times, and lived to our own generation, for he died during the Civil War, in 1864. He was distinguished as a scholar and collector, as a writer and a chemist. He was born in Trenton, New Jersey, of well-to-do parents, and his lines were always smooth enough, it appears. His early education was received in Edinburgh, but he returned home for his medical studies, and entered Rush's office, attending at the same time the Pennsylvania School, whence he was graduated in 1794. Then he went back to Edinburgh and to Paris for a couple of years.

In 1809, some thirteen years after his return to Philadelphia to begin practice, he was made Professor of Chem-

istry in the School there, and in 1818 was given the chair of Materia Medica and Pharmacy. He held the latter position until 1835, when he retired at the age of sixty-two, and though he lived nearly thirty years longer,—almost equalling his old pupil Jacob Bigelow in length of years,—we hear of him in the scientific world no more.

In 1802, soon after the pioneer work of Waterhouse, Coxe published "Observations on Vaccination," his most valuable contribution to medical literature.

In 1806 and 1808 he published a Dispensatory and a Medical Dictionary, very creditable and useful productions for the time. From 1804 to 1811 he edited also the *Philadelphia Medical Museum,* the second regular medical journal published in this country.

But Coxe always cared more for the ancients than the moderns. He collected a large library of old authors,—much the finest of its day in America,—and his last considerable work was the one which satisfied him best, "The Writings of Hippocrates and Galen," which was published in Philadelphia in 1846.

Take him all in all, he was a man we should be glad to see among us to-day,—a scholar in medicine.

An interesting, unfortunate, and in some ways eminent physician produced by Pennsylvania was John Eberle, who was born in 1788 and died in 1838. Thomas D. Mitchell wrote a foolish "Life" of him, and Gross published it in his "American Medical Biography." Mitchell had never laid to heart the maxim *de mortuis nil nisi bonum,* and out of his sketch it is difficult to extract much of good.

One conspicuous fact, however, could not be disguised, that Eberle, as much as any other one man, was the promoter of the Jefferson School, founded in Philadelphia in 1826.

He came of the old German peasant stock of Pennsylvania, and was born of poor parents. In some way they

were able to educate him, and he was graduated a Doctor of Medicine from the Pennsylvania School in 1809. For many years after that he neglected his profession and, having married, supported himself by newspaper writing and the exigencies of petty politics. He seemed to have become a victim to alcohol and opium during those years and to have gone into bankruptcy. Finally, in 1819, only nineteen years before his death, he took up practice again and that career which made him famous. He settled in Philadelphia, became well and favorably known to the leading men of the profession, and when, largely by his efforts, the Jefferson School was established, he became its Professor of the Theory and Practice of Physic. That position he held for six years, until 1831, when, by the solicitation of Drake, who had been his colleague for a short time, he went out to Ohio, to take a chair in the projected Miami College. This organization failed to materialize, so he accepted a similar position in the Medical College of Ohio in Cincinnati. Six years later, in 1837, he accepted a call to the reorganized Lexington School, becoming the colleague of Dudley, Richardson, and Thomas D. Mitchell. By this time, however, his health was gone, and, after struggling unsuccessfully to lecture, he took to his bed, and died in the following year.

He seems to have been an attractive, convincing lecturer. Great things were expected of him in Lexington when he went there from Cincinnati.

Besides teaching and promoting medical education, Eberle published in 1829 a treatise on the "Practice of Medicine," which was very popular among the students of that generation. He also made two unsuccessful attempts to establish medical journals in Cincinnati. The first, *The Western Medical Gazette,* after one or two suspensions, ceased with the second volume in 1835; the second, the *Western Quarterly Journal of Practical Medicine,* 1837, did not get beyond the first number.

The man appears to have been fashioned for better things than he accomplished; but certain it is that his doings as they come down to us do not explain that atmosphere of distinction with which his contemporaries seem to have surrounded him.

Another eminent Pennsylvanian, who may well be called the Father of American Gynæcology—if you will pardon the absurdity—was William Potts Dewees. Born in 1768, he was a colleague of those others whom this chapter has already chronicled, and he was certainly a strong member of the Pennsylvania faculty for many years.

Thomas says of him that his genius left its impress upon American obstetrics more decidedly than any other has done before or since.

He was a man of decided opinions, of considerable eloquence and learning; a vigorous, trenchant writer, and an inspiring teacher. For many years he was Professor of Midwifery in the University of Pennsylvania, and died in Philadelphia in 1841, at the age of seventy-three, after a life of many things accomplished.

As with so many other physicians, it is difficult now to estimate the extent of his influence, but his contemporaries and pupils proclaimed him a great man.

As a writer he was especially successful. In 1824 he published a "Comprehensive System of Midwifery," which ran through twelve editions; in 1825, a "Treatise on the Physical and Medical Treatment of Children," which reached the tenth edition; and in 1826, a "Treatise on the Diseases of Females," which also went to the tenth edition. Surely an active and popular pen. His friend and pupil, Hodge, wrote a Memoir [2] of him, and said of the "Midwifery" that it "takes a stand decidedly in advance of Denmon, Osborne, Burns, and even

[2] American Journal of the Medical Sciences, January, 1843.

of Baudelocque himself." Names mostly forgotten by us now, but leaving us to infer that to Dewees our medicine owes a very heavy debt.

In that same eighteenth century, three years after the close of the Revolution, there was born a man destined to pass most of his life as an army surgeon, but known in Europe as the first and one of the greatest of American physiologists. William Beaumont, a name inseparably connected by students with that of Alexis St. Martin, the simple Canadian voyageur, was born in 1785 and died in 1853.

Not long ago Osler [3] told about him, in his inimitable fashion, and brought him out of the obscurity into which we practical moderns had been allowing him to drift.

Beaumont's father was a prosperous farmer of Lebanon, Connecticut, and a Jeffersonian Democrat. In 1807, at the age of twenty-two, young Beaumont set out to seek his fortune, and, drifting to the village of Champlain, New York, soon became a popular and respected schoolmaster. He became interested in medicine, and with the help of two neighboring doctors—Seth Pomeroy and Benjamin Chandler—took up the study of their profession, which, with various desultory practice, occupied him until the outbreak of the War of 1812. Then he applied for a staff position in the regular army, and was appointed assistant-surgeon to the Sixth Infantry. He saw a variety of fighting during the following years, and was present at many of those petty engagements which took place along the Canadian border from Niagara to Lake Champlain. After the war Beaumont resigned his commission and practised very successfully in Plattsburg, New York, for five years, when he again applied for an army posi-

[3] The Journal of the American Medical Association, vol. xxxix. p. 1223, 1902.

tion, and in 1820 was given a surgeoncy and assigned to the post of Fort Mackinac at the Straits of Mackinac in northern Michigan. Two years later, while holding this obscure position, he came into the possession of Alexis St. Martin, the subject of his "Experiments on the Gastric Juice," as he himself so graphically tells in the introduction to his famous book. The coming into possession fell on this wise: On the morning of the 6th of June, 1822, St. Martin, a French Canadian lad, was standing in the company's store, "where one of the party was holding a shotgun (not a musket), which was accidentally discharged, the whole charge entering St. Martin's body. The muzzle was not over three feet from him,—I think not more than two. The wadding entered as well as pieces of his clothing; his shirt took fire; he fell, as we supposed, dead."[4] The wound was just under the left breast at the costal margin; the pleural and abdominal cavities were opened; the diaphragm was lacerated and the stomach perforated, allowing the escape of the gastric contents. Of course, the patient's life was despaired of, and, when Beaumont arrived on the scene a few minutes later, he dressed the wound for decency's sake, expecting to learn of the man's death when he should return a couple of hours later. But the man did not die. Beaumont gives a detailed account of his convalescence, which lasted nearly three years. Portions of ribs exfoliated and came away, abscesses developed, discharged, and closed, and the stomach became adherent to the anterior abdominal wall, with the formation of a fistulous track leading to it; the opening being closed by a valve-like flap of mucous membrane. Finally, the man regained entirely his health and strength, and in May, 1825, entering into the service of Beaumont, became the subject of the latter's experimental studies.

[4] Statement of G. G. Hubbard, an officer of the company; quoted by J. R. Bally and Osler.

Those studies of Beaumont occupied about three years in all, and were made at various periods between 1825 and 1833. After that St. Martin got back into Canada, and, though he travelled about exhibiting himself at sundry times and was entreated for many years to submit himself to further experimentation, he never again came under the observation of his benefactor.

The work which Beaumont did and the book he published admit of no analysis here; for is not their immense value to science familiar to all students? The book itself, an octavo of two hundred and eighty pages, is entitled "Experiments and Observations on the Gastric Juice and the Physiology of Digestion," by William Beaumont, Surgeon to the United States Army, Plattsburg. Printed by F. P. Allen, 1833.

In 1838 the book was republished in Edinburgh under the editorship of Andrew Combe, whose admirable introduction tells us how the work was viewed by foreign scientists. "It would be difficult to point out any observer who excels him (Beaumont) in devotion to truth and freedom from the trammels of theory and prejudice. He tells plainly what he saw, and leaves every one to draw his own inferences; or, where he lays down conclusions, he does so with a degree of modesty and fairness of which few perhaps in his circumstances would have been capable."

In 1839, six years after the publication of the first edition of his book, Beaumont resigned from the army. He happened to be stationed in St. Louis at the time, and there he settled down as a general practitioner. His vigor, his ability, his unusual attainments, and his enthusiasm for his work quickly drew to him a large and lucrative practice, and, though he was fifty-four years old when he took up this new career, he distanced his juniors and soon became recognized as one of the leading men of the city. As the town grew, he grew with it, and to the

end of his busy life he seems always to have been happy, prosperous, and fortunate.

He died April 25, 1853, in his sixty-ninth year. As has been well said of him, he is the pioneer physiologist of this country, the first to make an important and enduring contribution to this science.

There were several New York surgeons who flourished in the first half of the last century, distinguished men in their day, friends and contemporaries of Mott. Four of them are especially to be mentioned, Kissam, Rogers, Stevens, and Watson.

Richard S. Kissam has been already named. He was an amiable man, an able and competent operator; not especially to be noticed, except that his name appears frequently in the medical literature of the time. Ninety years ago he was a landmark, well known to the quaint old town, and the laity spoke of him fearfully and respectfully as the man who had operated on sixty-five cases of stone in the bladder, with but three deaths. He died in 1822.

Then there was J. Kearney Rogers, who was born in New York in 1793 and died in 1857. A fine, popular type of man, abundantly educated according to the best standards of the time,—a pupil of Wright Post, Astley Cooper, Abernethy, and Brodie. With Edward Delafield, he founded the New York Eye and Ear Infirmary, and was famous for his surgical technique and brilliant operating. His chief claim to fame among surgeons was won in 1846, when he tied the subclavian artery between the scalene muscles for aneurism.

Contemporary with Rogers was Alexander H. Stevens, who was born in 1789 and died in 1869. He, too, was a famous old landmark, and seventy-five years ago was a popular surgical teacher and professor of surgery. In early life he made a name for himself by the publication of a translation of Boyer's treatise on "Surgery," and

later he wrote several valuable surgical memoirs. For many years before his death he lived in retirement at Astoria, Long Island.

John Watson was the youngest of this group of surgeons, but by no means the least distinguished. He was an Irishman, born in Londonderry in 1807, who came to New York as a child. He was an able, brilliant operator, as were so many of those; but he was also a sound scholar, an admirable critic, and a delightful writer. For many years, too, he conducted a wide practice,—a general practice, such as fell to the lot of all the surgeons in this country in those days, and most admirable general practitioners they were.

In 1856 Watson published his "Medical Profession in Ancient Times," an interesting book, full of information, which one may read and remember. His library, at the time of his death shortly afterwards, was one of the largest collections of the works of the fathers to be found in this country.

Another interesting group belonging to the same generation was that of the three brothers Beck, New York men. Born in Schenectady, their lives were passed between that town, Albany, and New York City.

The eldest, Theodoric Romeyn Beck, was born in 1791, graduated in arts at Union College, of which his maternal grandfather had been the distinguished promoter, studied medicine with Hosack, and received his doctor's degree from the College of Physicians and Surgeons in 1811. Four years later he was called to be a teacher in the Medical School at Fairfield, where he held the chair of Medicine and Medical Jurisprudence.

From that time he was always teaching; indeed, he was the first American doctor of any distinction who gave up the practice of medicine in order to devote himself to that branch of professional work. The Fairfield appointment was not so obscure as it sounds. The School was in

reality the department of the College of Physicians and Surgeons for the Western District, in Herkimer County, New York, and was established under the auspices of the Regents. In 1817 T. R. Beck retired definitely from a practice which he abominated and adorned. At the same time he accepted the position of Principal of the Albany Academy, and kept up his work at Fairfield, which occupied but a small part of each year. The school teaching did not last very long, but he went on at Fairfield until the College was abolished in 1840. Albany and Geneva had medical schools, more than enough for central New York then. After that Beck took the chair of Materia Medica in the Albany Medical College and held it until 1854, the year before his death.

T. R. Beck published a really great work, a treatise on "Medical Jurisprudence," which appeared in 1823, in two volumes. Ten editions were issued during the author's life, including four English editions. This was the *magnum opus* which occupied his best years and his best thought. It soon won a world-wide reputation, and of the author and his volumes a writer says, "To him (Beck) is certainly due the high credit not merely of rousing public attention to an important and neglected subject, but also of presenting a work upon it which will probably never be entirely superseded. In foreign countries its merits have been duly appreciated and magnanimously acknowledged;" and the *Edinburgh Medical and Surgical Journal* says (vol. xxii. page 179):

"At length, however, the English language may boast of a general work on Medical Jurisprudence which will not only stand comparison with the best of the kind that the Continent has produced, but which may also be referred to by every medical jurist as a monument worthy of his science, and as a criterion by which he is willing that its interest and utility should be tried."

Theodoric Romeyn Beck died on November 19, 1855.

John Broadhead Beck was the second of the distinguished brothers, and was born at Schenectady on September 18, 1794. The father of these men died at the age of twenty-seven, while they were all children, so that they naturally drifted apart in early life. John B. Beck was graduated from Columbia in 1813; then travelled and studied in Europe, and returned to New York to take up medicine. He entered the office of Hosack, and succeeded to the position of his immediate predecessor, Francis. In 1817 he was graduated from the College of Physicians and Surgeons, and presented a thesis on Infanticide, a treatise which is still valuable. His brother Theodoric Romeyn incorporated it into his work on Medical Jurisprudence. In 1822, together with Francis and Dyckman, Beck established the *New York Medical and Physical Journal,* to which he contributed many valuable papers, notably on laryngitis and yellow fever.

In 1826 came an interesting episode. John B. Beck was elected Professor of Materia Medica and Botany in the newly organized College of Physicians and Surgeons, —newly organized because of the recent resignation of the old faculty, Post, Hosack, Mitchell, Mott, McNeven, and Francis. In the acute controversies which followed, Beck took his full share, and for a time was completely estranged from his old friends, who proceeded at once to organize that Rutgers Medical College of which we have heard. He himself continued a teacher in the old school for many years, and was a physician to the New York Hospital. As teacher and practitioner he was popular and useful.

He was a writer, too. You should read his "Historical Sketch of the State of Medicine in the American Colonies." Up to the time of its publication, no other similar work had been done so accurately. They came to call him "the Learned Beck" for his researches; and he wrote and published also "Essays on Infant Therapeutics," "Lec-

tures on Materia Medica," and "Researches in Medicine and Medical Jurisprudence." He died while occupied with such things, in 1851.

Lewis C. Beck was a younger brother of the two others. He was born in 1798 and died in 1853. Though four years junior to John, he was admitted to practice in 1818, one year later than his elder. He, too, was interested always in medicine rather than surgery, and especially in the teaching side of the life. From 1826 to 1832 he was Professor of Botany and Chemistry in the Vermont Academy of Medicine, where he came in contact with Nathan Smith. In 1836 he was appointed Mineralogist to the Geological Survey of the State of New York, and in 1840 was elected Professor of Chemistry and Pharmacy in the Albany Medical College. He was a prolific writer on the scientific subjects which he professed, his most important work being a "Report on Cholera," made to the Governor of New York in 1832.

Franklin Bache, of Philadelphia, is to be named. He was born in 1792 and died in 1864. For many years he was Professor of Chemistry in the Jefferson Medical College of Philadelphia. He is to be named because of the "Dispensatory of the United States," which with George B. Wood he compiled. The first edition was issued in 1833 and the seventh in 1847. The work was encyclopædic and of very great importance.

Charles D. Meigs was born in Bermuda in 1792, and began practice in Philadelphia in 1815. Of him a reviewer[5] has unkindly written: "The literary works of Dr. Meigs compare very unfavorably with those of his rival (Hodge) as to scientific value and exactness, but they are much more attractive to students and those who read for pleasure rather than instruction."

Meigs was a candidate for the chair of Obstetrics in

[5] J. S. Billings, 1876.

the University of Pennsylvania in 1835, but was passed over for Hodge. In 1841 he obtained the corresponding position in the Jefferson School. His best-known publications were "Woman; her Diseases and Remedies" (1847); "Obstetrics, the Science and Art" (1849); a "Treatise on Acute and Chronic Diseases of the Neck of the Uterus" (1850), and "On the Nature, Signs, and Treatment of Childbed Fevers" (1854).

Meigs drew special attention to cardiac thrombosis as a cause of those sudden deaths which occur in childbed; those deaths which had generally been attributed to "syncope." In this connection, T. Gaillard Thomas has written a paragraph which must interest every American student of the history of Medicine.

"It has been remarked by an eminent American author that Meigs 'just escaped the honor which is now and will hereafter be given to the eminent Virchow, of Berlin, of a great pathological discovery.' Even admitting the truth of this statement, it is certainly well that the justice of the award should here be questioned. Meigs proclaimed the fact in no uncertain or wavering tones, but boldly, decidedly, repeatedly, and by every method. Why is the honor not his? What else could he have done to deserve it? Many of his countrymen will sympathize with the voice which speaks now, after death, in this unmistakable manner, 'I have a just right to claim the merit of being the first writer to call the attention of the medical profession to these sudden concretions of these concrescible elements of the blood in the heart and great vessels.' It may be said that he did not follow his discovery into detail as regarded secondary deposits of emboli. What of that? He does not claim to have done so. What he does claim is clearly and unquestionably claimed with justice."

Meigs died on June 22, 1869.

Virginia and the eighteenth century furnished to Philadelphia many eminent physicians, few of them better

worthy of record than John K. Mitchell, who was born in 1793.

Mitchell was graduated in Arts at Edinburgh in 1815, and coming then to Philadelphia studied under Chapman and at the Pennsylvania School, where he took his degree in medicine in 1819. After that he spent a couple of years in voyaging for his health to India, China, and other distant parts. Finally, in 1822 he settled down to practice in Philadelphia and to give lectures on Medical Chemistry in the Summer School there. In 1841, at the age of forty-eight, he was made Professor of the Practice of Medicine in the Jefferson School, and there he taught until his death in 1858. He is worthy of record because he was a patient, original investigator, and a clear, logical reasoner. His essays on the "Cryptogamous Origin of Fevers," on "Mesmerism," "Endosmosis," and the "Ligature of Limbs for Spasm" are full of keen observations and thoughtful hypotheses.

A medical genius of ours, dead before his prime, was John D. Godman, who was born in Annapolis in 1794 and died in Philadelphia in 1830, at the age of thirty-six.

Doubtless he was no Bichat, but he was a young man of much the same enthusiasm and soundness of mind. He was poor and without friends, but an insatiable thirst for knowledge urged him to secure an education. In 1818, when twenty-four years old, he was graduated from the Medical Department of the University of Maryland. Three years later he went to Cincinnati, to the chair of Anatomy of the unhappy Medical College of Ohio; but the state of chronic despair there prevailing and the dissensions of the faculty soon brought about his resignation. Then he started the first medical journal west of the Alleghanies, the *Western Quarterly Reporter of Medical, Surgical, and Natural Science.* The enterprise struggled on so far as number three of the second volume, when Godman abandoned the Western field, and in 1822

went to Philadelphia to practise medicine and establish a private course in anatomy. Though his health was failing, he pushed on, and in 1826 had made himself so conspicuous as a scientist that he was called to the chair of Anatomy at Rutgers, in New York, to meet there the goodly company of distinguished men so often named. Mott took a special liking to him, and was deeply distressed the following year when he broke down and had to give up teaching. Godman continued to write, however, during the three years which remained to him. His treatises on the "Fascia" and "Physiological and Pathological Anatomy," produced during those painful years, were his most valuable contributions to science.

Réne la Roche was an eminent writer on Yellow Fever, who published in 1855. He was of French descent, but was born in Philadelphia in 1795, his father being an emigrant from St. Domingo. La Roche was not connected with any medical school. His reputation rests on his writings, and especially on that yellow fever treatise, which embodies, corrects, and amplifies practically all that was known of the disease up to the time of its publication. It was for long regarded as a classic.

George McClellan shares the honor with sundry others, notably, Eberle, Rhees, Green, and Beattie, of being called the founder of the Jefferson Medical College. He was born at Woodstock, Connecticut, in 1796, and died in 1847, in the fifty-first year of his age. He made no great permanent impression upon our art, except that he helped to launch a new school; but he was extremely popular in his time as a bold, dashing operator, and an enthusiastic, inspiring teacher. His book, "The Principles and Practice of Surgery," was edited, as a posthumous work, by his son, John H. B. McClellan.

Robley Dunglison, an enterprising Englishman, was for years one of our most fertile and prolific medical teachers and writers. He was born in Keswick in 1798,

and was well educated at Edinburgh, London, and Paris. Then he settled down in London to practise and write. In 1824, when twenty-six years old, he published a treatise on "Children's Diseases;" at the same time he was an editor of the *London Medical Repository*. In that year Thomas Jefferson was at work developing the University of Virginia. The old man seems to have been unable to find in America material suitable and willing for the staff of the Medical School. He wanted a man for the comprehensive chair of Anatomy, Physiology, Materia Medica, and Pharmacy; so he looked to England, and fixed upon young Dunglison in London, who gladly accepted the call. That was the Dunglison who wrote the "Dictionary." Every doctor over thirty-five years old owns a copy of it. And that was the Robley Dunglison, too, who made himself so popular in America that people took to naming their children after him. Old Dr. Evans, of Virginia, did so, as the Navy Department knows.

So Dunglison came out to Virginia in 1824 and stayed there until 1833. During those nine years, in 1827, he published a syllabus of his course in Medical Jurisprudence, and prepared his "Medical Dictionary."

By the year 1833 the man's reputation had been spread broadcast, so that they called him to a wider field in Baltimore. He became Professor of Materia Medica, Therapeutics, Hygiene, and Medical Jurisprudence in the University of Maryland. Three years more brought him to Philadelphia and the Jefferson School, which was busy looking about for rising stars. In 1836 he took the chair of Medicine there, and remained until 1868, the year before his death. He was an interesting and thorough teacher, and he published sundry books. His "System of Physiology" (first edition, 1832); "Hygiene" (first edition, 1835); "Therapeutics" (1836); "Practice" (1842), and "Materia Medica" (1843) were well known, and passed through several editions.

Of course, his admirable "Medical Dictionary" was his monumental work and made him deservedly famous. The first edition was published in Boston in 1833, in two volumes. It contains short sketches of prominent physicians. Unfortunately, those little biographies were not reprinted in the subsequent editions.

Dunglison died on April 1, 1869.

The name of Hugh L. Hodge has been familiar to American students of medicine for three generations. He was born in 1796, was graduated in Arts from Princeton, in Medicine from the University of Pennsylvania, and was a private pupil of Caspar Wistar, from whom he received a strong taste for surgery. However, after settling to practice in Philadelphia, he fell under the influence of Dewees, who induced him to devote himself to midwifery and the diseases of women. In those specialties he became famous as practitioner, lecturer, writer, and inventor of instruments still familiar to us and bearing his name.

During many of his early years Hodge lectured on Obstetrics in the Medical Institute, and in 1835 was elected Professor of Obstetrics to the University of Pennsylvania, over Meigs, the rival candidate. He held the chair for thirty-eight years. During his long professional life Hodge published a number of valuable works on both obstetrical and gynæcological subjects, notably, "Cases and Observations regarding Puerperal Fever" (1833); "Diseases peculiar to Women, including Displacement of the Uterus" (1860); "Principles and Practice of Obstetrics" (1864); and essays upon "Synclitism of the Fœtal Head" (1870). His writing is clear, forcible, and convincing, though it must be admitted that much of it is heavy. As a teacher he was greatly respected. As he grew old he became almost blind, and much of his writing was done by dictation, his work on "Obstetrics" entirely so.

He invented that form of forceps which is still in common use in this country, and he taught its value. He is equally to be remembered for his invention of uterine supports, and "Hodge's Pessary" seems to be as well known to grateful women as to physicians. He was quite a mechanical genius, and devised various tools of the trade still to be found among us.

He died in 1873, at the age of seventy-seven.

Samuel Henry Dickson was another Southerner who made a part of his reputation in the North. He was born in Charleston in 1798, was graduated from Yale in 1814, and in Medicine, from the Pennsylvania School, in 1819. Then he went back to Charleston, where he was a professor in the Medical School from 1824 to 1834, with an interval of two years, after 1831. For three years from 1847 he taught in the New York University; then again in Charleston from 1850 to 1857, and finally for the year 1859 at the Jefferson School.

Now the one thing most conspicuous about Dickson, among doctors, was the charm of his writings. His larger works are not especially noteworthy, but his numerous journal articles and volumes of essays are among the most attractive contributions to our medical literature. He died in 1872.

Samuel George Morton was a distinguished anatomist and professor in the Pennsylvania School from 1839 to 1843. He was born in Philadelphia in 1799, and was educated there and in Edinburgh. His great work, "Crania Egyptiaca," gave him a reputation throughout the scientific world. He died in 1851.

While such were the doctors in civil life, a few army surgeons lived who should be known to us by name at least. Thirty years ago Harvey E. Brown, an army surgeon, wrote out for the Surgeon-General a detailed account of the Medical Department from 1775 to 1873. It is a story well worth reading. The disciplined officer tells

feelingly, but with restraint, of the struggle, lasting through a century, to bring up that important branch of our public service to the level where it should be,—a struggle against the ignorance, stupidity, and obstinacy of successive Congresses, and the frequent cold indifference of the War Department itself. Suffice it here to name the early Surgeons-General and one or two others of note.

Of Morgan, Shippen, Cochran, Tilton, Warren, and Craik during the Revolution some mention has already been made. Two or three of them appear on the register of medical officers of the army in later years.

In 1798, when there was a threat of war with France, the same James Craik, of Virginia, was appointed, by Washington's request, Physician-General. The man had led an interesting life. A Scotchman by birth, he had come out to Virginia, about 1750, to practise medicine. He had accompanied Washington in his desperate expedition against the French in 1754, and the year following had gone with Braddock's unfortunate little army against Fort Duquesne. After that he practised in Virginia until the outbreak of the Revolution, when he went with Washington to the field. He served through the war and rose to be Physician to the army, serving under Cochran. With the collapse of the French war scare in 1800, he was mustered out of the service and returned to his home near Mt. Vernon. He had been Washington's physician for many years, and was with him when he died, a wise old man, but unable to subdue a disease which we no longer think of as essentially fatal.

James Tilton (1745-1822), of Delaware, was appointed Physician and Surgeon of the army in March, 1813, and served until his retirement in 1815. He had been a distinguished medical officer during the Revolution, ranking fourth in the list of hospital surgeons at the close of the war. After that he took up private practice again, but continued an active interest in public affairs and rep-

resented his State in Congress. His work entitled "Economical Observations on Military Hospitals and the Prevention and Cure of Diseases incident to the Army" is interesting, and was an authority a hundred years ago.[6]

He served with great distinction and satisfaction to the country through the War of 1812, and accomplished many important reforms. While still in active service, in 1814, he had his thigh amputated for malignant disease, but recovered, was retired, and died at the age of seventy-seven, in May, 1822.

Joseph Lovell, the first Surgeon-General properly so called, was appointed on April 18, 1818. Lovell was a Massachusetts man, born in Boston, December 22, 1788. His grandfather was a leading member of the "Sons of Liberty," and had been taken as a hostage to Halifax by the British when they evacuated Boston in 1776. Lovell's father, James S. Lovell, married Deborah Gorham, "a noted Boston belle;" Joseph Lovell, the Surgeon-General, was their eldest son. He was educated in Boston and was graduated from Harvard in 1807. He then studied medicine, and had just begun practice, when he was appointed surgeon of the Ninth Infantry on the outbreak of the War of 1812. In charge of the general hospital at Burlington and serving with Generals Scott and Brown, he showed exceptional ability. His commission in 1818 was very popular with the whole army. For the rest of his life he served as Surgeon-General, and with great effectiveness. He reorganized the medical regulations and brought the department up to a condition of great efficiency. He died on October 17, 1836.

Brown says of him, "The greatness of his loss to the army, and especially to the corps which he may almost be said to have brought into being, can hardly be exagger-

[6] See Review in Medical Repository, 1813.

ated. He was one of those rare and lovely characters of whom it is no affectation to say that 'the world was not worthy.' Throughout his official career he had gained the universal respect, admiration, and affection of all with whom he was associated. His predominant characteristics were a strong sense of the dignity of his position and of the profession to which he belonged, and a gentleness of demeanor in all his relations, both official and personal, with the subordinate officers of the Medical Staff. . . . In all his relations, whether as Christian philanthropist, profound scholar, skilful surgeon, experienced officer, or true-hearted gentleman, he was one of whom the Medical Staff may always be proud, and the memory of whose good life is written on every page of its history.

"In 1842, the officers of the Medical Corps testified their affection for his virtues by the erection of a handsome monument over his grave in the Congressional Cemetery at Washington."

Thomas Lawson was appointed to succeed Lovell on November 30, 1836. The contrast between the two was striking. Lawson was a man of great force of character, a stern disciplinarian, with an ardent love for the military profession, and a high sense of the value of his corps to the army. He was determined to secure for it every right which his judgment thought best, and to weed out from it every member whom he thought to reflect no credit upon it. In consequence, he was frequently in collision with both his superiors and inferiors, but he was dismayed neither by authority nor influence. So he came to be sincerely respected and admired, but he won no affection.

Lawson was a Virginian by birth. He first saw service as surgeon's mate in the navy in 1809, but was transferred to the army in 1811, and became surgeon's mate to the Sixth Infantry. In 1813 he was promoted to surgeon and served with distinction during the War of 1812.

In 1821 he was transferred to the General Staff as the senior surgeon of the army. As medical director at New Orleans, in the Department of the South, and during a long service on the frontier in the field, he acquired a great practical experience and an enviable reputation. His chief conspicuous service as Surgeon-General was during the war with Mexico, whither he accompanied General Scott, and acted as chief medical officer of the army of invasion.

Though a Virginian, he remained in the Union service on the outbreak of the Civil War; but shortly after the attack on Sumter he was obliged to resign because of failing health. He went down to Norfolk, and died suddenly on May 15, 1861.

Those men already so briefly mentioned in this chapter are to be classed as belonging truly to the history of a time now far behind the present generation. Born in the eighteenth century, their work was done mostly in the early years of the nineteenth, and with the naming of them the purposes of this book have been accomplished.

There followed immediately a generation which has hardly yet disappeared from our midst; men known intimately to many of us now living, and with a perspective upon them insufficient for true historical vision. The active lives of most of them were passed prior to the great Civil War, but much of their work was done also in more recent years, and for that reason the mere naming of the names of a few of them must suffice, else the theme would lead us on to forbidden ground, besides expanding this book far beyond the limits set for these modest covers.

There were the brilliant brothers, John L. Atlee (1799-1885) and Washington L. Atlee (1808-1878), pioneers, with Alexander Dunlap, E. R. Peaslee, and Gilman Kimball, of abdominal surgery in America. Their struggles against the bitter opposition of professional conservatism, their daring work and their successes, all too tardily rec-

ognized, will make a chapter of recent history of engrossing interest for future readers.

Horace Green (1802-1866), Professor of Theory and Practice in the New York Medical College, was the first man to devote himself as a specialist to diseases of the nose and throat.

Elisha Bartlett (1804-1855), delightful character, accomplished scholar, teacher in many schools, — Woodstock, Pittsfield, Dartmouth, Baltimore, Lexington, Louisville, and the University of the City of New York,— should be known to every student of our literature.

Samuel D. Gross (1805-1884), of Philadelphia. There is a name which one passes by with regret, — bibliographer, surgeon, teacher, untiring writer, a man of universal sympathies and acquaintance, and a friend of three generations. No physician of the last century is better known to all of us to-day.

Isaac Ray (1807-1881), the great alienist, the first man after Rush to bring permanency to our literature of mental disease.

Gurdon Buck (1807-1877), the New York surgeon, whose "Extension" is a household world in all hospitals.

Alonzo Clark (1807-1887), a name with which to conjure,—great teacher, sound practitioner, wise consultant, and promoter of good work.

Henry Ingersoll Bowditch (1808-1892), of Boston. The exponent among us of the best teaching of the French School; known among other things for his work on diseases of the chest and his exposition of paracentesis.

Oliver Wendell Holmes (1809-1894), best beloved of American writers, but known to his medical brethren as a brilliant anatomist, and the first to maintain the thesis of the contagiousness of childbed fever.

Jonathan Mason Warren (1811-1867), of Boston; accomplished son of a famous father; cut off in the midst of his life-work; he was an exponent of the best in American Surgery.

Austin Flint (1812-1886), of New York, through a long professional life was constantly before the public eye; a teacher, a practitioner, and the author, twenty years ago, of the best books on general medicine in the English language.

James Marion Sims (1813-1883), a Southerner, transplanted to New York; the brilliant light of American gynæcology; founder of a great hospital; ingenious, resourceful surgeon.

Henry Jacob Bigelow (1818-1890), of Boston, the autocrat of New England Surgery. Meteoric craftsman, fascinating teacher, an enthusiast in all things, a master of many; not soon to pass from memory.

CHAPTER XVII.

SOME TENDENCIES IN MODERN MEDICINE.

Before concluding this retrospect of medicine and its professors as they have been in the America of our ancestors, it may be interesting to readers—especially to readers belonging to that large class felicitously called laymen—to glance at one or two of the tendencies of the modern doctor's life,—its pleasures, hardships, ambitions, and conditions.

The first thing that strikes the student of medical history is not so much the great advance in knowledge among our leading men, compared with the best knowledge of the past, but the gradual levelling up of the masses of the profession and the sanity of their outlook on the problems of the doctor's life. This levelling up was not the immediate result of the great discoveries and teaching of the past. We have seen how most of the American contemporaries of Sydenham, and the Hunters, of Bichat and Haller, remained in a state of blindness. The general improvement has grown out of the fact that we have gradually come to apply to our medical teaching, as to our teaching in all other lines of endeavor, the American principles of higher education; the meeting the demands of our masses by giving them of our best. In view of the backwardness of American medical education up to a few years ago, such a statement may sound paradoxical. We had been forever comparing our darkness with the enlightenment of the great European centres, and telling of our own ignorance. But such telling and such comparing bore their fruit. We kept looking at the best things among those foreign folk, and crying out that we

should lead up to them not our chosen few, but our rank and file. We have never been contented with looking at the state of that European rank and file, nor have we been willing to leave our people at such a level as we have seen over there.

That dream of a medical education which seemed among us so unattainable, even two decades ago, is every year coming nearer to realization. Beginning with the high requirements set by the great schools of Baltimore, Philadelphia, New York, Boston, and Chicago within the memory of men still young, the good work has spread, until now there is hardly a State in the Union which does not boast at least one school at which the zealous and diligent student may find a scientific education of a high order.

Gradually the requirements for admission to our Medical Schools have been raised; the average age of the students is higher; more and more the matriculants are found to be holders of preliminary degrees in arts or sciences; indeed, in two or three of our best schools that degree is a prerequisite for admission. The high standard which is being set is already showing results, and the sane minds in the community are coming to recognize the meaning and the value of the man highly trained for his special task.

There is existing at the same time one of those tidal waves of gregarious hysteria such as sweep over society in fairly regular cycles. Just at present this is taking the form of a faith in "Christian Science;" the success of which has stimulated the growth of sundry similar delusions, known as Dowieism, Holy Ghost Societies, and other such. These lapses from reason are seen not only among persons of some degree of education, but even among the most rude and ignorant of the European peasantry,—like the Russian Doukhobors who were recently transported to northwestern Canada, and took to

wandering, by the thousand, in zero weather, barefooted, "looking for Jesus."

The outbreak of Hahnemannism, or Homœopathy, in our grandfathers' days, was an affair of quite another type. That cult rose in the midst of other cults and "schools." It did not appeal to the scientific men of the time, but it did appeal to the laity and the poorly educated in the profession weary of dosing and bickerings and small things accomplished. The rise of homœopathy would be impossible to-day with our more general intelligence and accuracy of method. The vestiges of the once famous "School" still linger among us, — a nebulous simulacrum,—though the *name* is used by thousands of well-educated physicians who cling to the rag of a discredited therapeutics. But time rectifies all things, and we must believe that these misguided ones will some day drop this semblance of a thing and see that science knows no qualifications.

We must recognize the fact, too, that so great a country as ours calls for doctors of various training; that the highly polished, city-bred product, the man who has spent ten or more years of his life in an academic atmosphere, in college, medical school, laboratory, hospital, and foreign travel, is not likely to seek his life-work in remote country districts. On the other hand, such districts must have their doctors,—patient, sturdy, self-reliant, industrious men, who will live in the open, in long daily rounds, visiting hamlets and outlying farms, content with the people and the social conditions to be found in the woods of Maine, the swamps of Mississippi, or the mountains of Idaho. For such men the small school and the shorter course of study still exist. It is well that they should do so.

There is no question that one result, at present, of our higher education is that those country districts are not being properly furnished with medical care; while in the

cities the supply of trained men greatly exceeds the demand. The report for 1898-99 of the Commissioner of Education is before me. From it one learns that in that year there were 23,778 medical students in the United States, an increase of 345 over the previous year. Of these men 21,401 were matriculants in the regular schools of medicine, 1802 in the homœopathic schools, and 575 in various irregular institutions. There are 151 schools, and all but fifteen report that they give a graded course of four years, and in several the months of required attendance in one year are equal to the total required attendance of twenty years ago. During the ten years from 1889 to 1899 the number of students of regular medicine increased 75 per cent.; of homœopathy, 55 per cent.; of dentistry, 301 per cent.; of pharmacy, 26 per cent.

There were 4389 instructors that year of 1898-99, and 4911 students were graduated; and of those students some 480 held the degree of A.B. or B.S.

What becomes of these men when they have been graduated? Where do they seek their work? Into what special types of doctors do they develop? Do they go out, as did their fathers, to minister to the masses scattered over the country, finding work of all kinds ready to their hand, but at great labor and scanty remuneration; in the careers of general practitioners? or do they congregate in the cities to wait; to take up narrow lines of work, to hope that practice will come to them; in the careers of city specialists? or are there such things as country specialists and city general practitioners?

These are interesting and far-reaching questions, and not altogether possible to be answered from the scanty data at hand. One may draw some striking and instructive conclusions, however, from a study of the recent graduates of one school. It is a study in statistics, to be sure, but even statistics may at times be made luminous.

In the ten years from 1892 to 1901 there were graduated from the Harvard School some 820 men, of whom there is record, and of these men the following inquiries recently were made:

(1) Your name and medical class?

(2) Name and population of your community?

(3) Are you a general practitioner or specialist?

(4) What is your specialty?

(5) Do you combine a general practice with your specialty?

(6) If a general practitioner, do you anticipate becoming a specialist?

(7) If a specialist, have you ever been a general practitioner?

Now, the Harvard School, as we know, is one of our oldest foundations. It is located in an ancient and conservative community, and draws its students from a people given to commercial and manufacturing pursuits, little to agricultural. Its graduates settle mostly in the New England States, though it is represented in scattering fashion almost everywhere throughout the country, the colonies, and among the Spanish-American peoples.

It was one of the schools early to set a high standard for matriculants and graduates, to require a four years' course of study for the degree, and of late years to demand of its students on admission that they hold a preliminary degree in arts or sciences.

To the inquiries made, 487 men, or nearly two-thirds, replied. The summary of their answers is given in the table on the following page.

A study of these figures gives one various information, some of which is surprising. In spite of the general assumption of the contrary, it is found that a minority of the men are settled in large cities, that is, in cities of 100,000 or more. The men in large cities number 191 out of 487.

	1892.	1893.	1894.	1895.	1896.	1897.	1898.	1899.	1900.	1901.	TOTAL.
Class and number of those replying	54	54	73	25	56	48	62	55	47	13	487
Size of community:											
100,000	20	24[1]	28[1,2]	13[3]	26[1,3,2,4]	24[3,4]	23[1,4,2]	17	14[2,5,4]	2[5,2]	191
10,000 to 100,000	28	26	36	10	17	21	31	34	20	6	229
below 10,000	5	3	7	1	8	1	4	4	3	2	38
General practitioner	25	26	30	13	22	20	30	24	15	7	212
Specialist	16	12	21	4	12	4	11	6	9	1	96
Both general practitioner and specialist	11	12	12	6	13	19	9	9	7	1	99
General practitioner with expectations	6	4	10	2	8	5	11	15	13	3	77
Specialist, formerly general practitioner	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	2
		1[1]	1[1]	1[3]	2[1]	1[3]	1[1]		4[2]	2[5]	
			1[2]		1[3]	1[4]	2[4]		4[5]	1[2]	
					2[2]		2[2]		2[4]		
					1[4]						

[1] United States Navy. [2] Not given. [3] United States Army. [4] Institution. [5] Hospital.

In the small cities (10,000 to 100,000) are to be found 229 men, or nearly half the total. Twenty-nine men are in the army and navy or are unclassified, and only thirty-eight are in places of less than 10,000 inhabitants, that is, in country practice.

Perhaps the most interesting fact is that of the 487 men, only 96 are pure specialists. Of the remaining 391, 13 are unclassified and 378 are general practitioners. The general practitioners say this of themselves in qualification: Ninety-nine combine some specialty with their practice, 77 expect some day to abandon general practice for a specialty, and 202 are and expect to be Simon-pure general practitioners. Two men only, and they are of the class of 1892, state that they are specialists who have been general practitioners.

The specialists are divided into the following groups:

Surgery, 42.
Gynæcology, 19.
Medicine, 12.
Otology, 9.
Laryngology, 9.
Aurist and Oculist, 7.
Pathology, 7.
Dermatology, 7.
Oculists, 6.
Eye, Ear, Nose, and Throat, 5.
Chemistry, 5.
Orthopædics, 5.
Children's Diseases, 4.
Neurology, 4.
Genito-Urinary, 4.
Infectious Diseases, 3.
Bacteriology, 3.
Insanity, 3.
Anatomy, 2.
Physical Training, 2.
Obstetrics, 2.
Gastro-Intestinal, 1.
Nutrition, 1.
Aurist, 1.
Lungs, 1.
Dentistry, 1.
Obstetrics and Children's Diseases, 1.
Stomach Diseases, 1.
Anæsthetist, 1.
Military Medicine, 1.
Pædiatrics, 1.
Bacteriology and Orthopædics, 1.
Internal Medicine and Nervous Diseases, 1.

The facts which these figures illustrate compare in an interesting fashion with various assumptions which have been made of late years by many men writing on *tendencies in medicine,* and chiefly as regards the asserted inevitable specializing of all members of the profession.

The time has long passed for discussing the propriety and advantages of specializing. Not forty years ago there was a serious attempt made in the American Medical Association to legislate against specialists and to declare such men to be disciples of the evil one. Through the efforts mainly of Henry I. Bowditch such attempted legislation was brought to naught. Nevertheless, the prejudice against specialists continued wide-spread for many years. In the course of time, however, all reflective men have come to see that specializing in medicine is as essential to true progress as is specializing in all skilled labor throughout the world. Very properly, the discussion has advanced beyond that point.

At present, such discussion as there is turns on the question whether all physicians are not specialists and must not turn to specialties; and whether, in the evolution of events, the "Family Doctor" and the general practitioner are not to become obsolete. A recent writer goes so far as to say, "That the *family adviser,* the physician who stands in the most intimate possible relation to the family, should cease to exist, is a fact we may well regret, but which, nevertheless, we are bound to face."[1] And, again, "It is to be hoped, therefore, that the term 'general practitioner' as opposed to 'specialist' will soon go the way of other inaccurate terms." Of course, if the question is merely one of definition, the old-time general practitioner has largely disappeared already; but most of us—laymen and physicians alike—understand by the term, as used to-day, a man who is competent to practise internal medicine and general surgery, but does not attempt the more difficult operations, nor encroach far upon the field of the narrow specialists,—the oculist, the aurist, and such.

That such general practitioners are in a fair way to

[1] Boston Medical and Surgical Journal, vol. cxlvii. p. 219, 1902.

disappear there is abundant reason to doubt. Such are the men who become "family advisers;" and it is unlikely that the community will agree to part with them. The question is one of supply and demand; and if qualified graduates in medicine cease to do such work, the community will turn to the unqualified.

Here are twenty consecutive cases taken at random from the case book of a "family adviser" in large city practice: A tea drunkard, a child with diarrhœa, a child with slight follicular tonsillitis, a young man with a "tobacco heart," a man with a slight troublesome arthritis (rheumatism), a girl with a felon, two cases of vaccination, a woman with headache from constipation, a case of boil on the neck, a case of bronchitis, a neurasthenic woman, a child with cervical adenitis ("scrofula"), two cases of debility from overwork, a case of frost-bite, a case of conjunctivitis ("pink-eye"), and three cases of influenza. The curious layman asks, To whom would most of these persons have turned had there been no "family adviser"? Then there is that very large class of cases which seek the medical adviser as their ancestors sought the priest. Their needs are mental and emotional rather than physical, and for them the family doctor is still a very real need.

However all this may be,—and the present writer has no purpose of maintaining a thesis,—the figures of our table show that in the last ten years, in a conspicuous group of highly trained men, there appears no increasing tendency to abandon "general practice."

Aside from this matter of specialism in practice, there is the further interesting development among us of laboratory students; sometimes loosely called "scientific men" to distinguish them from practitioners of medicine. Of course, they are no more "scientific men" in the literal and proper sense than are the careful clinicians who make observations and draw logical conclusions. The practice

of setting them apart and applying to them a term which should embrace all honest doctors is unfortunate, and tends to create an erroneous impression. Of late years, too, there has come into use the term "scientific medicine," as though there existed alongside of it such a thing as unscientific medicine. The term "antiseptic surgery" is disappearing from our vocabulary, for septic surgery has ceased among us, let us hope. "Scientific medicine" and "antiseptic surgery" should be consigned to a common limbo.

You may see, from this outline of some of the various interests which occupy modern doctors, how far they have drifted from the simple lines in which their grandfathers moved. In many ways the pursuit of medicine has become something quite distinct from what it once was; but it has always drawn to it many of the best minds in the community, as it continues to do, and one is often asked what are the pleasures and attractions of the physician's life.

That is a title for the mellow pen of age, "The Pleasures of the Doctor's Life;" yet so suggestive a query deserves an answer of some sort, though each of us may hold his own opinions.

There are a dozen minor pleasures common to all physicians, and pleasures of sundry kinds as various as the special tasks to which a man may turn his energies. To the laboratory investigator, the chemist, the pathologist, the physiologist, the anatomist, there is the fascination of study,—a fascination which not even the loss of his senses can take from him altogether. Many writers have told in charming words the joy of the naturalist's life. It is much the same with these other men of science. In a congenial atmosphere, uninterrupted by the sordid cares which burden the business of most men, and with responsibilities less grave than weigh upon their practising colleagues, they lead the life of students, but of stu-

dents whose progress is constant and their horizon the universe. They are banded together for mutual improvement; they have a sympathetic and kindred audience ready to hear what they have to impart. The good things they do are quoted and rehearsed in all civilized lands; they are continually adding to the sum of human knowledge. What they contribute bears most directly on one of the greatest problems of existence,—the health and happiness of the human family; and they are constantly deferred to and consulted by their fellow-laborers in other fields of medicine. Truly it is a vocation full of profit and pleasure and honor.

At the other extreme of the medical fraternity, though in many ways closely in touch with these student folk, are those general practitioners or family advisers of whom we have heard tell; and the most familiar type of these is the country doctor. A great many words, glowing and kindly, appreciative and sympathetic, simple and pathetic, have been written about these same country doctors. Perhaps the best word of all—a tale that makes one throb with pride in human nature, so fine is it, so virile, and so wholesome—is that story of "Ian Maclaren's" called "A Doctor of the Old School."

It is all true enough. There are such men, and they are not disappearing from our midst, in spite of heroics. We all know what the life entails,—endless, ceaseless labor, long journeyings by day and by night, often a round of two days before home is reached again, little congenial companionship of modern science, scanty pay, and, hardest of all often, the sense that the world is moving on, leaving this workman hopelessly in the rear. But there must be some compensation, though many do not admit it. There is the old, ever-present sense of accomplishment; the having plenty of work to do, which we know is the greatest pleasure the world has for most of us; the stimulation of great responsibility; the pecu-

liar realization that in one's self alone reside powers, and capacity, and knowledge denied to all one's neighbors. Then there is that life in the open, the companionship of nature, of horses and dogs, of trees, flowers, fields, sky, and clean air; albeit cold and snow, heat and rain may come to qualify. But men are found for it all, and tardily folk recognize their value and their services. And these country doctors surely come to know life. In that there is a certain great satisfaction. Probably to no others in the world are the strength and weakness of humanity more completely laid bare,—its ambitions, struggles, failures; its feebleness and its success, its meanness and its greatness.

That is a field for study, exhaustless, fascinating, pathetic, contemptible, terrible. It ends by making its votaries sneering sceptics or great-hearted philosophers; and with all these men, however humbly stationed, whatever their temperament may be, there is that ever-present fact of which we know,—they have their place in one great brotherhood.

There is a third class of doctors whose lives are but little less strenuous, though less arduous, than those of their country brethren. Of them we often hear that their lines are laid in easy, pleasant places. They are the highly trained, successful city men, who come to be known to the laity as the great consultants. Specialists they are, of course, and in diverse lines, but most of them can look back upon careers that are not dissimilar. Given special qualifications and advantages at the outset of life, perhaps, it is interesting to look at the details of their early training, and so to make clear some of those other pleasures which medicine affords.

Most of these men, in whatever country they be found, but more especially in America, are persons of University training, holding degrees in arts or science; and from our colleges they are passed on directly into the medical

schools. In them they take the course with all the others, and for those four years their experiences are the same as fall to the lot of the future laboratory student or country doctor; but with this exception, that about the middle of their terms, usually in their third year of study, they begin to look forward to and prepare for hospital work. Such preparation consists commonly in finding positions as student assistants or dressers in the out-patient departments, where they work for a few months, whether with surgeons, physicians, or other specialists.

The great prize held out to students ambitious of perfecting themselves is an assignment as house-officer to a hospital, for a residence of something like two years, after graduation. For these positions the competition among students is very keen, as the places mean a great experience acquired in a short time and under superiors of presumed ability.

That hospital life and what it means to a young man at the outset of his career is another of the unique pleasures about which folk inquire. There is no parallel in the other professions, though it approaches in some things the experiences which a young army or naval officer knows. The medical graduate has just completed his four years of incessant grind, in which he has been a passive receptacle for the outpourings of many teachers; he has won his spurs, in a fashion, by winning the hospital place; and by a process of quick, graded promotion he is to reach a position of real responsibility. In the best hospitals the discipline from top to bottom is not unmilitary. There are men of many ranks: the senior physicians and surgeons, mature men mostly, of distinction in the profession; next, their immediate juniors or assistants, sometimes called "physicians to out-patients," men often well advanced in their careers. These two groups, with the various specialists, constitute the staff proper, and are wont to hold their places through their most productive years. Then

we come to the resident house staff, the young men of whom this tale is told. They are divided variously in various hospitals and are known by various names; but it comes to this, that usually there are four of them assigned to each senior surgeon and two or three to each senior physician. One often is tempted to envy the youngest of these house-officers as he starts off with the prospect before him of sixteen to twenty-four months of congenial, absorbing work. It is a life the charm of which grows on one; men often come to look upon their hospital as upon their alma mater, and to turn back to it in after years with equal pride and regret.

The externe, or neophyte at the life, is set to simple tasks; to record keeping, to making chemical and other such investigations, to bandaging and dressing, to etherizing, and to general utility work. Then, after a period of probation, he is advanced a place. His duties are still much the same, but with increased responsibilities; perhaps he goes with the ambulance to accident and emergency calls, or assists the out-patient surgeon in the routine of minor surgery, taking his chance at operating now and again upon some lesser case. His next step is distinctly an advance. Whether as medical or surgical assistant, he is now given the charge of wards and some of the serious responsibility of the graver cases. He makes examinations, sees to the conduct of routine treatment, takes his orders directly from the visiting staff, assumes more or less of the burden in emergencies, and acts as second assistant at major operations.

Finally, in the last months of his hospital residence, he comes to the highest attainable grade,—he becomes house-physician or house-surgeon, or "house," or senior house-officer, or head interne, according to the local term in vogue. At any rate, he becomes a very important and dignified personage.

The college "senior" is as nothing to him. He has

men under him who smile and run at his bidding, and call him "Sir;" the externe trembles before him and stands in his presence; he talks on easy and familiar terms with officers of the junior staff and is affable with the visiting chief, whose right hand he is. His responsibilities are really great and his duties onerous. The smooth running of the whole "service" rests with him. He must know all the cases, and must treat personally the more difficult, and have an eye to those of his junior. He must consult with the hospital authorities about endless details; he must supervise and assign much of the work of his subordinates,—the internes, the nurses, and other attendants; he must see and treat all accident cases, many of which are of the gravest kind, and he must, in serious emergencies, act for himself or send for counsel, as his judgment may dictate. He must stand ready to institute and initiate new modes of procedure in diagnosis and treatment, and undertake all manner of investigations for which circumstances may call. He must be prepared night and day to meet and assume all sorts of unexpected duties and risks, such as the life in a great hospital constantly presents; he must take the leading part in assisting his chief in operations, examinations, the conduct of clinics, the marshalling of patients and, often, the preparation of material. In short, he must be a very *deus ex machina,*—always ready, cheerful, competent, vigorous, and unruffled. Of course, it is a position of great difficulty and importance and calls out the best that is in a man. Mere brains do not suffice. Discretion, endurance, adaptability, and that rare quality we call tact are needed; and proper courtesy and breeding count for something in such a place. Few young men in any vocation have better opportunities than the senior house-officer of a great hospital to show the stuff that is in them; and it must truly be said that by their work in that position men often are made or marred for life.

Such are some of the tasks and duties of the hospital life, and it can be seen that the compensations are not few. Authority alone is a great stimulus; and the doing of important things for the welfare of one's fellow-beings, probably for the first time, is a unique pleasure. These men are breathing a very vital atmosphere, which is always throbbing with new excitements and new interests. They are learning new things every day, and they are putting into practice the theories they have been taught. These things they are doing, too, in congenial comradeship and friendly rivalry. They are living in a little world all their own; they are very human; they watch each other's work, discussing and comparing, and, perhaps, greatest satisfaction of all, as they come to find themselves, they are learning to weigh and estimate and criticise their chiefs.

Surely to the right-thinking man it is a very happy time of life,—much to be regretted, often to be looked back upon, and greatly to be prized while still in hand.

From all this the future specialist is graduated in the course of time, and then comes the question, What to do and how to do it? If he is still young and has money and leisure, he may go to Europe, to learn the languages, to push his studies, to see other men and other methods, a very broadening and helpful experience. At any rate, his day for all such things soon passes. He comes home, settles himself down, gives forth to the world, through card and "shingle," his whereabouts and purposes, and humbly joins the ranks of those who wait.

This is no essay on how to succeed in life. I fancy most men take a plenitude of advice, and then follow their own bent. The true qualifications are inborn and cannot be supplied. That is as true in medicine as in all else; but courage, endurance, and a willingness to undertake what comes properly to hand, backed by such a train-

ing as we have seen, go far to make strong men successful in this busy, modern world.

After all, I take it that the great underlying pleasure and satisfaction of the doctor's life lies in something which in degree is common to all toilers in this world,—in the sense of something accomplished, of work done, of work in itself. Yet there is more than that in it; the workman is indeed individualized, but he belongs to a vast army. There is in the work for him a great, uplifting sense of fellowship. The curtain was drawn aside when he first crossed the threshold of his alma mater, which opened to him one door of the many standing wide to the brotherhood of science. It is no local party or section which he claims as his own; there is no conspiracy, or scheming, or secrecy, or clash of arms. His fraternity is world-wide; it embraces all lands and all peoples who have joined with him in the finest, the noblest, the most absorbing quest ever known to man,—the search after Truth.

That is the essence of what is brought to the student of medicine with almost the first breath he draws at his novel tasks. The sense of it all comes to him slowly. Sometimes its full meaning is never wholly revealed; sometimes, in the struggle for existence, in personal rivalry, in petty misery, in money getting and money losing, he forgets or lapses; but he cannot avoid the great central fact if he would. Over the true votary the ægis is always thrown, and the deserter must wander far if he would escape its shadow.

Surely, my friends, who have followed me so far, enough has been said to demonstrate the meaning of the medical life here in America. It has a very real and fruitful past, a very vital present, and a future, let us hope, which some day may mean as much to mankind as do those other institutions in the land of which we boast.

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